

Alpen March von H. H. H.

THE
CHIRURGICAL
WORKS
OF
PERCIVALL POTT, F. R. S.
AND
SURGEON to St. BARTHOLOMEW'S
HOSPITAL.

IN TWO VOLUMES.

*A certis potius et exploratis petendum esse præsidium; id est, his quæ
Experientia in ipsis curationibus docuerit; sicut in cæteris omnibus
artibus: nam ne Agricolam quidem aut Gubernatorem Disputatione,
sed Usu fieri.*

A. CORN. CELSUS.

VOL. II.

12712

LONDON:
PRINTED BY JAMES WILLIAMS,
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A
T R E A T I S E
O N T H E
H Y D R O C E L E, &c.

[Continued.]



S E C T I O N VIII.

Methods of curing the Hydrocele of the Vaginal Coat.

TH E methods of cure (as they are called) in this species of hydrocele, though various, are reducible to two, (viz.) the palliative, or that which pretends only to relieve the disease in present, by discharging the fluid ; and the radical, or that which aims at a perfect cure, without leaving a possibility of relapse. The end of the former is accomplished by merely opening the containing bag in such manner as to let out

the water : that of the latter cannot be obtained, unless the cavity of that bag be abolished ; and no receptacle for a future accumulation left. One may be practised at all times of the patient's life ; and in *almost* any state of health and habit : the other lies under some restraints and prohibitions ; arising from the circumstances of age, constitution, state of the parts, &c. &c. &c.

The palliative cure, (as I have just observed) consists in merely giving discharge to the fluid which is contained in, and distends the tunica vaginalis.

The operation by which this may be accomplished, is a very simple one. The only circumstances requiring our attention in it, are, the instrument wherewith we would perform it ; and the place or part of the tumor, into which such instrument should be passed.

The two instruments in use, are the common bleeding lancet, and the trochar.

The former, having the finer point, may possibly pass in rather the easier, (though the difference is hardly perceptible) but is, in my opinion, liable to inconveniences, to which the latter is not. The trochar, by means of its cannula, secures the exit of the whole fluid without a possibility of prevention ; the lancet cannot. And therefore it frequently happens when this instrument is used, either, that some of the water is left behind, or that some degree of handling and squeezing is required for its expulsion ; or, that the introduction of a probe, or a director, or some such instrument, becomes necessary for the same purpose. The former of these may in some habits



bits be productive of inflammation; * the latter prolongs, what would otherwise be a short operation, and multiplies the necessary instruments; which, in every operation in surgery, is wrong. To which it may be added, that if any of the fluid be left in the vaginal coat, or insinuates itself into the cells of the dartos, the patient will have reason to think the operation imperfect, and to fear that he shall not reap even the temporary advantage which he expected. The place where this puncture ought to be made, is a circumstance of much more real consequence; the success of the attempt, the ease, and even sometimes the safety of the patient depending upon it.

Whoever conceives, as many have done, and some still do; that the testicle hangs loose in the middle of the water within the vaginal coat (like a clapper within a bell) must also suppose that every part of the general tumor is equally fit, and proper for this operation. The idea is erroneous, and the experiment may prove highly mischievous. All the anterior and lateral parts of the vaginal coat, are loose and detached from the albuginea; in its posterior, and superior part, these two tunics make one; consequently the testicle is, as it were, affixed to the posterior and superior part of the cavity of the sac of an hydrocele; and, consequently, the water, or fluid can never get quite round it. This being the state of the case, the operation ought always to be performed

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* A consequence which I have seen to proceed from it, attended with a slough of the whole dartos, and which I am much inclined to believe would not have happened in the same person, had the water been drawn off by a trochar.

ed on that part of the tumor, where the two coats are at the greatest distance from each other; and where the fluid must therefore be accumulated in the largest quantity, and never on that part of it where the fluid cannot possibly be. The consequence of acting otherwise must not only produce a disappointment, by not reaching the said fluid; but may prove, and has proved highly, and even fatally, mischievous to the patient.

It was a custom formerly, after performing this operation, to make use of fomentations, and discutient applications, upon a supposition that by such means a return of the disease might be prevented. Among the old writers, are to be found the forms of medicines to be applied to the groin and scrotum, to prevent a future descent of the fluid; but anatomy, and experience, have proved the falshood of such supposition, and the absurdity of such applications: the present practitioners content themselves with a bit of lint, and a plaster; and if the scrotum has been considerably distended, they suspend it in a bag truss; and give the patient no farther trouble.

In most people, the orifice thus made heals in a few hours, (like that made for blood-letting;) but in some habits, and circumstances, it inflames and festers; this festering is generally superficial only, and is soon quieted by any simple dressing; but it sometimes is so considerable, and extends so deep, as to affect the vaginal coat, and by accident produce a radical cure. I have also seen it prove still more troublesome, and even fatal: but then the circumstances both of the patient,
and

and of the case, have been particular, and such as required attention. (See Cases 21 and 22.)

Whether it arose from a fear of wounding the testicle in the operation, or from a supposition that while the quantity was small, it was more likely to disperse; or that while there was but little fluid they did not think the disease sufficiently characterised; or from some other reason, which they have not thought fit to give us; but many writers of good authority, (and among them Mr. Serjeant Wiseman,) have forbid the puncture in an adult, while the quantity may be supposed to be under a pint: which restriction is still scrupulously attended to by many practitioners, to the no small trouble and inconvenience of their patients.

When there is a sufficient quantity of fluid to keep the testicle from the instrument, there can be no reason for deferring the discharge; and the single point on which this argument ought to rest, is this: "Whether the absorbent vessels, " by which the extravasation should be prevented, are more likely to reassume their office, " while the vaginal coat is thin, and has suffered but little violence from distension; or after " it has been stretched, and distended, to ten " or perhaps twenty times its natural capacity; " and by such distension is (like all other membranes) become thick, hard, and tough." For my own part, I think the probability so much more on the side of the former, that I should never hesitate a moment about letting out the water, as soon as I found that the puncture could be made securely. And from what has happened

10 A T R E A T I S E O N

ed within the small circle of my own experience, I am inclined to believe, that if it was performed more early than it generally is, it might sometimes prevent the return of the disease.

C A S E XXI.

A Gentleman, turned of sixty, came to me with an hydrocele of the tunica vaginalis.

He was corpulent, full habited, inclined to be asthmatic, and subject to an irregular kind of gouty inflammation, which attacked different parts of him, at different times. The disease was on the right side, the scrotum much distended, and on the skin of it was an inflammatory kind of blush. His pulse was hard, and as I thought too frequent, and he seemed to me to have a degree of heat, and thirst, not consistent with his health. His age, his habit, his general state, and what I apprehended to be the state of the sac, all forebade any attempt but the puncture; and I took some pains to dissuade him from that, until he should have removed both his general complaints, and the local inflammation on the scrotum. He said, that he felt himself perfectly well; that he was sure he had no gout about him then; that what I took for an inflammation on the scrotum was only a scorbutic eruption to which he was frequently subject; and concluded with a hint, that he thought whatever should be done previous to letting out the water, could be designed only
for

for my own benefit, by lengthening the time of my attendance.

I pierced the middle and anterior part of the scrotum with a small trochar, and drew off near a quart of a greenish fluid; I put a bit of lint and plaster on the orifice, and as the empty scrotum hung very loose, and flabby, I persuaded him to let it be suspended in a bag truss.

In the afternoon he went out; and at night finding that the plaster was rubbed off, and thinking that the suspensory was put on for no other reason, but merely to keep the dressing on, he took off his bandage.

Next day he went out again, walked a good deal, drank freely after dinner, and when he came to his lodging in the evening he went to bed much out of order. In the night he had a severe rigor, for which he took a large spoonful of a tincture of snake-root and saffron, which he always kept by him.

On the third day, finding his scrotum much swoln, and very uneasy, he sent for me.

I found him in bed, complaining of great pain in the lower part of his belly, and groin: his pulse was quick, hard, and irregular; his skin hot; his tongue dry, and black: his countenance flushed; and his intellects not quite steady. His scrotum was swelled and inflamed all over; and in a part, considerably distant from the puncture, was a mortified spot as big as a shilling.

After I had dressed him, I desired, as he was quite a stranger to me, as well as to the people of the house where he lodged, that he might have more assistance; accordingly a physician was sent

sent for, who prescribed for him. At the end of three days one half of the scrotum was completely mortified; and in about seven more it cast off, with so large a portion of the tunica vaginalis, that I had no doubt that none of it was left.

The gout now made an attack on his feet, and the inflammation left all other parts; the sore put on a good aspect, and in a short time he got well. But notwithstanding the very large portion of the vaginal coat which came away in a slough, I have twice since drawn off a full pint of water from the same side.

C A S E XXII.

A Man about forty, afflicted with a large hydrocele of the tunica vaginalis, and which, from a misapprehension of the true nature of the disease, he had never consulted any body about, having been robbed by a servant of a considerable sum of money, was obliged to travel very hard, on horseback, from the neighbourhood of Exeter, to London.

When he set out, his scrotum was free from all disease, except its distension by the water; but when he came to this town, it was covered all over with an inflammation of the erysipelatous kind; was much increased in size, and very painful to the touch. He was much fatigued with his journey, and just before he went to bed in the evening, had a shivering, which was followed

lowed by a very restless night, and a considerable degree of fever. In the morning his scrotum was so much inflamed, that he was alarmed at the appearance, and sent for assistance. The person who came to him, immediately made an opening, by means of a pointed knife, into the tunica vaginalis, and gave discharge to a considerable quantity of water; but, by night, the whole scrotum was mortified. That evening I saw him, but without any hopes of being able to serve him. His pulse, which had been full, hard, and rapid, was now small, and faltering; his head was very unsteady, and his extremities cold; all the tumefaction of the scrotum was gone, and it seemed one large eschar. On the next morning he died.

Now, though it be very possible, that the same appearance and event might have ensued, if no puncture had been made; yet I think it is very clear, that it would have been more prudent to have tried first what a soft cataplasm, and an antiphlogistic method could have done. For, by making the opening hastily, and without a proper prognostic, the operator (whether deservedly or not) incurred all the blame.

C A S E XXIII.

A Poor man was brought from the neighbourhood of Rosemary-lane, to St. Bartholomew's Hospital.

His

His scrotum was of prodigious size; very hard, excessively inflamed quite up to his groin; it was of a dusky red colour; extremely painful to the touch; and in one part seemed inclined to sphacelate; the spermatic process also was considerably thickened. He had a hard, full, rapid, pulse; a hot skin, a flushed countenance, great thirst; and complained of a most excruciating pain in his back.

The account he gave was, that he had, for some years, been troubled with a swelling on the right side of his scrotum, which some of the surgeons of St. Thomas's Hospital had told him was a water-rupture, and would have tapped: that he had also applied to several rupture-doctors, each of whom had sold him a bandage, and some of them had pretended to cure him by medicines and applications: that finding no relief from any of these, he had a few days before given an itinerant stage-quack three guineas to cure him. That this operator laid him on his back, on a couch, and lifting up the tumor, thrust an instrument into it. That no discharge followed but blood. That it bled for near a quarter of an hour, and then stopped upon his fainting away. That from the time of this operation (which was two days) he had been in extreme pain; and, that his operator, not coming to take any care of him, his friends had brought him to the hospital. He was immediately bled, had a glyster injected, and the scrotum was enveloped in a soft, warm, poultice, and tied up in a bag truss. When he had passed a stool, I ordered him a grain of extract. thebaic. to be taken immediately and repeated again at the distance

tance of six or eight hours. Next day he was much the same in every respect; his pain was excessive, particularly in his back, and he had not closed his eyes. I bled him again freely, (he had two stools in the night) and gave him two grains of opium, and direction to repeat one grain every six hours until he got ease and sleep. His scrotum was well fomented, and the cataplasm continued. Two days more were spent in this manner, before we obtained any remission of the symptoms; when that was done, I pierced the anterior part of the tumor, and drew off more than a pint of bloody serum. The testicle now appeared very much enlarged, and hardened; but, by persisting in the antiphlogistic method, he at length got well.

I suppose the reader will have as little doubt as I have, that all this mischief was produced by wounding the testicle, or epididymis.

C A S E XXIV.

A Young fellow, who was waiter at a tavern in the city, and who had for some months past laboured under a succession of pocky symptoms, had at last a true venereal farcocele, with a small quantity of fluid in the vaginal coat.

As he had several other venereal symptoms then upon him, and his way of life subjected him to great irregularity, I advised him to obtain leave to quit his place, and attend to his cure. This he did not chuse to comply with; and I heard no more

more of him till about a month afterwards, when his master desired me to call at his house.

I found the lad in bed, with a high fever, and with his scrotum swelled, and inflamed to a very great degree. He said, that two days before he had met with an acquaintance (a surgeon's mate of a man of war) who told him, that his whole complaint was a water-rupture, and that for a bottle of claret he would cure him immediately. That he had thrust a lancet deep into the lower part of the swelling; that nothing followed but blood; that he had spent some minutes in poking into it with a probe, in hopes of getting the water out, but ineffectually; but that he had been in racking pain ever since. Phlebotomy, glysters, opiates, febrifuge medicines, &c. were all employed, by which means his pain, fever, &c. were at length got the better of; but almost the whole testicle cast off in one large slough.

Means for a Radical Cure.

EVERY other method of treating this kind of hydrocele, except the puncture, was either originally intended to obtain a radical cure; or having been found to have been often productive of such, has been, by different people, ranked sometimes among the palliative,

palliative, sometimes among the radical means.

In many of the old writers are found directions for obtaining the cure of this disease by the use of a seton, a cannula, a tent, a caustic, a ligature, an injection, or an incision.

Some of these are adopted, or preferred by one, and some by another, according to the theory which they entertained of the disorder; or to the benefits which they had seen to have accidentally arisen from the use of the said means.

To reduce these under some kind of method (which the manner of their being delivered to us, does in general not very easily admit) we may say, that the seton, the tent, and the cannula, were either originally meant to palliate a disease, of which the old practitioners had very disagreeable apprehensions; or that they were made use of upon a supposition that the fluid contained in the cyst was in itself noxious; or that the general habit of the patient was relieved, and many other disorders prevented by the said humour falling, or being deposited in that part; or from an opinion that the cure of it ought not, by any means, to be hastily, or rashly attempted: that the caustic, cautery, and ligature, were designed to prevent the supposed descent of the water from the abdomen into the scrotum: and, that the injection was calculated for the constriction of a supposed breach in lymphatic vessels.

Some

Some of these (happily for mankind) are now quite laid aside; the reasons for their use being found to be false and groundless: of this kind are the cautery, the ligature, and the injection. The water is now, by every body who has made any enquiry into the matter, known to be formed and collected in the part where it is found; and not to have fallen into it from the belly: and, though an obstruction in the lymphatic vessels of the spermatic chord, may in some degree prevent the regular and due absorption of the fluid, from the vaginal tunic, yet, no breach, or rupture of such vessels, can ever produce the disease in question: the extravasation, in such case, must be in another part; and may possibly cause a hydrocele of the cellular kind, in the common membrane of the spermatic vessels, but which can never be found within the tunica vaginalis.

The reasons originally given for the use of the tent, and the cannula, viz. the noxious quality of the fluid, and the necessity of a gradual cure, are now also known, and acknowledged to be without foundation; and therefore tho' these methods, or methods like these, do still continue to be used, yet it is with another view, and upon other principles: not with intention to lengthen the time of a cure, by making a gradual drain for the prevention of other disorders; but merely, to abolish the cavity of the tunica vaginalis, by having excited, and maintained such a degree of inflammation and suppuration, as shall produce an
union

union between that coat, and the albuginea testis.

This is indeed the only rational end, which can, by any of these means, be pursued; for the disorder being absolutely local, and the tunica vaginalis (the seat of it) most commonly somewhat altered from its natural state, by having been distended: unless the absorbent vessels can again be restored to a capacity of doing their duty, (a circumstance which does not very often happen) the arteries will continue to exhale new serum into the cavity, and the hydrocele will still remain, or be renewed in a short time after each discharge.

To obtain this end, two kinds of means are proposed; in the use of one, it is intended, by means of a small wound, to excite such a degree of inflammation, as shall occasion, or be followed by, a total, and absolute cohesion of the tunica vaginalis with the tunica albuginea: in the other, a larger and more free incision is made; whereby the cavity of the former of these coats, is converted into a hollow, or open sore, or ulcer, to be filled up by a new incarnation; or else, a part of the said tunic being cut away, its power of again holding the extravasated fluid is equally prevented.

The first, or union of the two coats in consequence of inflammation has sometimes been found to follow the use of such means, as were intended to procure only a temporary relief; it sometimes follows the simple puncture with the trochar, or lancet; the ancient method of letting out the water, by a small incision,

incision, frequently produced it * ; and the seton, the tent, and the cannula, tho' used for another purpose, or at least for other reasons, were found to be followed by it so often, that they soon were ranked among the means for obtaining a radical cure †.

They

* This was by making, first an incision of some length, thro' the scrotum, and dartos, so as to lay the tunica vaginalis bare, and then by making a puncture in the latter. The accounts given by Brunus and Theodoric, are the same as that of all the writers before them, and have been copied by many since: "Curatio ejus est, ut incidatur cutis testiculorum sectione ampla secundum longitudinem ejus; dein perfora, et aquam extrahe."

† Many of the old writers have left us directions for, passing the seton, and for introducing the tent, either of lint or sponge, and the cannula, either of alder, or of silver.

Gulielmus e Saliceto, having first proposed the use of external applications, says, "Si hac via non consumitur aqua, tunc perfora bursam, cum phlebotomo tuo acuto, et extrahe aquam, non subito totam, sed partem; et pone in foramine illo tentam lineam, vel stuppeam, aut spongiam; ut posses de die in diem aquam extrahere: et nota, quod hujusmodi ægritudo multoties recidivat; et si sic, semper redeas ad perforationem antedictam: et via ista, et modo, perfecte curabitur."

Fabricius ab Aquapendente, speaks of the tent as frequently used by him, in the mixed case of hydrocele and sarcocelé, or diseased testicle; tho' by the account he gives of his success it is pretty clear that he used it in the hydrocele only; or when the testicle was not really diseased. His words are, "Si carnosâ simul et aquosa sit hernia, ego talem adhibeo curam. Seco cutem, et incisionem facio exiguam, et in loco potius altiori, quam in fundo; inde, turunda imposita cum digestivo, et pus movente medicamento procedo, neque unquam totum pus extraho, sed perpetuo bonam partem intus relinquo, quod sensim carnem corrodat, et ita sanat." An adhesion of the vaginal coat, with the albuginea, may be the consequence of such treatment of an hydrocele, and consequently such patient may obtain a radical cure, but whoever has seen any thing of the disease properly called a sarcocelé, will know, that it will very seldom bear such rough treatment.

This method of procuring a firm cure (by the tent) is mentioned by Ruysch: "Sanari quidem valet id mali pertuso scrato, ope instrumenti touchart dicto, vel lanceola phlebotomica, ut aqua
"vulnere

They were indeed, (as I have already observed originally designed to discharge the water gradually ; and to continue such a drain from the parts where it had been collected, as might prevent any of the ill consequences, apprehended, from the removal of the local disorder : but the inflammation, which supervened sometimes, producing a cohesion of the sacculus to the surface of the testicle, what was originally calculated for a palliative remedy only, was by many adopted for a radical one.

If

“ vulnere exeat, sed cito plerumque recrudesceat malum. Si autem curationem aggredieris aperiendo scrotum a parte superiori ad latus, tuncque vulnus turunda oblonga unguento rosaceo, mercurio precipitato rubro inuncto oppleveris, donec lenis inflammatio, eique succedens suppuratio parva, membranulas stilantes putrefecerit, tuncque eas tenaculo eduxeris, &c.”

Professor Munro, of Edinburgh, has proposed a method of cure, upon the same principle ; but much better, and more likely to procure the one thing aimed at, (the lenis inflammatio) as he employs no cathartic medicines. His words are : “ Considering how readily contiguous inflamed parts grow together ; and how many instances there are, of people having a radical cure made of this hydrocele, by inflammations coming on the part ; it would seem no unreasonable practice, to endeavour a concretion of the two coats of the testicle, when they are brought contiguous, after letting out the water through the cannula of a trochar by artfully raising a sufficient degree of inflammation.

“ This to be sure must be done cautiously, and so that the surgeon can reasonably expect to be master of the inflammation ; and therefore the application of all irritating medicines, the operation of which he could not immediately stop, or any single mechanical effort, the effect of which he could not be sure of, are not to be employed.

“ Suppose the cannula of the trochar was to be left in ; by the extremity of it rubbing against the testicle an inflammation might be artfully raised ; the cause of which might be taken away as soon as the surgeon thought fit, &c.” MEDICAL ESSAYS.

This method, with some small alteration, I have once or twice used with success. Being afraid of the pain which might be caused by the extremity of the cannula rubbing against the tunica albuginea,

If the event, and consequence flowing from these means, were as much in our power, as they have been said to be; that is, if we could with any tolerable precision or certainty determine the degree of inflammation to be excited, and the effect of such inflammation on the vaginal coat, there would be no doubt of the utility of them; but this is far from being the case; for although it sometimes is sufficient for the purpose wished for, and rises no higher than just to a degree equal to that purpose, yet it also frequently happens, that either such degree and extent of it is not excited, or it rises much higher, and proves much more painful and fatiguing, than was promised or intended; or (what I have several times seen) after a great deal of pain, and confinement, a partial cohesion only has been the consequence, and the disease has still remain-
ed,

buginea, and the irritation in consequence thereof, I have left it in, but with a piece of bougie (whose length exceeded that of the cannula about a quarter or an eighth of an inch) within it. Of all the methods of using a tent, I think this is the best, as the cannula secures its passage into the cavity of the vaginal coat; which the collapsing of that tunic, and the loose texture of the dartos, would otherwise render somewhat difficult. But although I have once or twice succeeded in this manner, I have much oftner been frustrated: sometimes it has proved absolutely ineffectual; and at others, I have seen it raise such a disturbance, as to render it necessary to lay the whole cavity open before a cure could be obtained.

Of all the methods of obtaining a radical cure of an hydrocele, by exciting inflammation within the tunica vaginalis, and thereby obtaining an adhesion between it and the albuginea, that by the seton is by much the best; it is the least painful, the most easily managed, excites the least troublesome symptoms, and is the most frequently successful: but as I shall have occasion to speak of this hereafter, I shall defer saying any more concerning it in this place.

ed, notwithstanding all the patient's and our trouble. Sometimes the pain, inflammation, and symptomatic fever are but little ; but on the other hand, they are all three sometimes so great as to become alarming, at least to a patient who has been taught to expect a cure upon much more easy terms. The whole scrotum sometimes becomes excessively inflamed, and after a good deal of pain, and trouble, large deep sloughs are produced, and the process becomes as irksome as any of those, whose event, (with regard to a cure) is much more certain.

If the inflammation be but slight ; the pain, and tumefaction, moderate ; the symptomatic fever light ; the suppuration small, and an universal cohesion of the two membranes is produced ; the event is very fortunate, and a very troublesome complaint is thereby got rid of, upon very easy terms. If the event proves what I have mentioned in the second place ; that is, if either the inflammation be confined to the dartos, where it sometimes produces several superficial abscesses (of no consequence toward the cure of the disease ;) or if it has been so partial, as only to have occasioned the cohesion between the tunics of small compass, the cavity will not by this means be abolished, nor any thing like a radical cure be obtained ; consequently the patient will have undergone all the fatigue, confinement, or pain, (be it more or less) for nothing. But if the inflammation rises high, if the scrotum swells considerably, and large deep sloughs are formed (as

sometimes happens) the symptoms, and the hazard, are then fully equal to what attend those more certain methods. Which of the three will be the event, no man can say. Under the same external appearances, different people are more or less liable to inflammation, and fever; the confinement of matter, in consequence of too small an opening, will in some habits make strange havock, in a very short time; and if a large opening, and a plentiful suppuration must at last be submitted to, the method by a large incision at first is preferable, as the cure is more certain, and the loss of time less. Different circumstances in the patient will render one method preferable to, and more likely to succeed than another; but whenever a cure is attempted by any of the before-mentioned means, the uncertainty of the event should be made known, and the patient be apprised of what may happen, either with regard to trouble or disappointment.

All the methods hitherto taken notice of, are calculated to produce a perfect, or radical cure, without making a large wound, or bearing the appearance of a surgical operation: those of which I am now to speak, are intended for the same purpose; but by making a large and free opening into the bag, containing the fluid, to render the accomplishment of such purpose more certain.

These are called the cure by *caustic*, and the cure by *incision*. The cure by caustic is calculated to spare the terror which a cutting instrument always conveys; and, (as the patrons
of

of it say) to avoid the painful symptoms, and hazard, which frequently attend a large incision in these parts. The method is this : a piece of the common paste caustic, rather less than a finger's breadth, properly secured by plaster, is applied the whole length of the anterior part of the tumor, which will necessarily make an eschar of proportional size. When this eschar either casts off, or is divided, an opening of nearly the same length and breadth is thereby intended to be made into the cavity of the tunica vaginalis testis : by which means an opportunity is given to the surgeon to apply such dressings to the inside of the said tunic, as shall, by the generation of new flesh, fill up, and abolish its cavity. The preference which some practitioners have given to this method before that by incision, has been upon a supposition that a circumstance which very seldom happens, will most frequently occur ; I mean the penetration of the caustic through the vaginal tunic, containing the fluid.

By this they hope to avoid the symptoms which are supposed to be generally excited by the division of the said bag by a cutting instrument. I will not say, that the caustic never does this ; but I must say, that I have very seldom seen it do so. If the tumor be very large and full ; the containing parts very much on the stretch ; and the skin and dartos very thin ; the caustic may now and then penetrate through, to the vaginal coat : but this, whatever may be thought or pretended, very seldom happens ; and when it does not, the
tunica

tunica vaginalis must be divided in the same state and manner, as if no caustic had been applied. All the difference between the two methods (caustic and incision) will then amount to this; that in the former, the skin being mortified, the patient is freed from a part of his apprehension at its being cut; and the surgeon, fancying that his escharotic has gone through the vaginal coat, will divide it, as a part of the eschar: but a more careful examination of what he is about, at the time of such operation, would generally convince the latter, that he divides the bag unaltered by the caustic; and the symptoms which often attend this process, confirm it. It has indeed been proposed to divide the eschar made in the skin, down to the surface of the tunica vaginalis, and then by the application of a fresh caustic to make an eschar in that coat also. But whoever makes, or submits to this experiment, will find that of two evils he chuses the greater; and, to avoid the pain of incision, incurs a much greater degree of it by the repetition of the escharotic. The pain attending the first application of the caustic, is indeed to some persons but little; but in many it is fully equal to that of the knife, and must always be of much longer duration: if it does not penetrate the tunica vaginalis, that bag must be divided by a cutting instrument (as I have already said) in the same state as if no caustic had been applied; which incision is and must be accompanied, with the same symptoms, (in the same person) as in the operation

ration by the knife only. Nor can we at all times confine the caustic, so as that it shall not cause a much larger sore than is intended, or can be necessary.

Upon the whole the cure by caustic, as it spares the terror and apprehension of a bloody operation by the knife, and as it requires no dexterity in the operator, may, on those two accounts become preferable both to many patients and surgeons; yet whoever promises to perform, or expects to receive a radical cure by caustic, upon much easier terms than by incision, will most frequently be disappointed; that is, they will frequently find the fever, and inflammatory symptoms full as high, and the sore full as painful in the one as in the other; and consequently all their care and attention to obviate mischief, full as necessary. Neither is the necessary confinement, in general, at all less in the one than in the other.

One of the methods made use of by the ancients to let out the fluid from an hydrocele of the vaginal coat was, (as I have already observed) by making a pretty large division of the scrotum and dartos, and having by that means laid the tunic bare, to make an opening into that also, and thereby discharge the contents. This method sometimes produced a perfect cure in the first instance, but much more frequently produced only a temporary relief. If the opening made in the tunica vaginalis was small, and united again immediately, the bag filled again with water, and the disease recurred; but if the orifice instead of immediately uniting, became inflamed, or sloughy, such an adhesion of that coat to the albuginea testis sometimes

times followed, as caused an abolition of the cavity of the former, and consequently a radical cure. Tho' this happened now and then, and the cure was really accidental, yet it furnished a hint for attempting to obtain the same end, with a much greater degree of certainty. This was by dividing or laying open the whole cavity or bag containing the water; and that, sometimes, by a mere simple division of it; sometimes, by the total removal of some part of it.

Paulus Ægineta, Albucasis, Severinus, and many others of the best of the ancient writers, have given a particular account of this operation; and it has at all times been practised by some, tho' it has generally been decried, and dreaded. In what manner, and with what caution it may have been executed, by those who have given so bad an account of it, I know not; but by what I have seen of it, I am very confident that the ills attending it have been much exaggerated; that, under proper cautions and restrictions, it will be found to be practicable with perfect safety; and that it ought by no means to be laid aside. Some writers of very good character have appeared very averse to it, and have ascribed to it such symptoms in general, as are indeed very alarming; but which do not occur, unless the operation be performed improperly, or on subjects unfit for it. I have practised it very often, and do not remember to have seen any ill effects from it, more than two or three times. I would be very cautious how I advanced any thing in a matter of this kind, which experience would not vindicate, or by which others might be misled; but I have so often

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ten made the experiment, and with much success, that I cannot hesitate to assert, that under the necessary restraints, regarding age, habit, state of the disease, &c. it is a very useful operation, and may be practised with great propriety. I may, perhaps, be thought to speak better of it than it deserves: I am not conscious that I do; but I am much inclined to believe, that they who appear so averse to it, have either practised it on improper subjects, and in improper circumstances, or, having imbibed a prejudice against it, have been unnecessarily alarmed at what would not in other cases have alarmed them; or, that not being sufficiently apprehensive and attentive, they have suffered their patients to get into circumstances of hazard, which are not justly chargeable on the operation merely, and would not happen under more careful management.

Advanced age, and apparently bad or cachectic habit, a disposition to anasarca or leucophlegmatic swellings, an intemperate life, the custom of drinking spirituous liquors, and any such general disorder in the constitution as is likely to increase the symptomatic fever, which such an operation must necessarily produce, are just objections to it: any disease of the glandular part of the testicle, its coats or vessels, an old irreducible hernia, a diseased state of the urethra, prostrate gland, or neck of the bladder, are (while they continue) good reasons for not performing it: but, *consideratis considerandis*, in young and healthy people, and in a recent state of the disease this method of obtaining a radical cure is a very good, and a very practicable, one.

The

The method of performing the operation is as follows : having appointed an assistant to grasp the upper part of the tumor, in order to render it tense below, a puncture should be made in the lower and anterior part, through the skin and vaginal coat. If the operator intends to finish the incision with a knife, he should make this puncture large enough to admit the end of his forefinger ; which he should introduce immediately, before the water is all discharged, and the vaginal coat collapsed ; and upon that finger, so introduced, he should continue his division of the whole length of the bag, and of the scrotum which covers it. If he intends to use the probe-scissars (a more tedious and a more painful method) he may make his first puncture with a lancet, and then introduce his scissars. Upon the first division, the water rushes out, and the tumor subsides ; if the puncture be made small, a part of the fluid will insinuate itself into the cells of the dartos, and by the immediate collapse of the vaginal coat, the operator will find some difficulty, in introducing either his finger or his instrument into the orifice made in it ; if he does not do this, he will divide only the skin and dartos, and the patient must undergo a second incision, for the division of the cyst ; all which inconvenience may be avoided, by making the first opening large enough for the introduction of the finger ; and when that is in, all the rest is, upon that, very easily executed *.

When

* Some practitioners, terrified at the accounts which they have received of the operation, and yet being desirous of producing a radical

When the vaginal tunic is divided, and the fluid thereby discharged, the testicle, covered only by its tunica albuginea, comes into view; and if the incision was either begun, or continued very low, it generally thrusts itself out from the wound. This should be gently replaced; and if the vaginal coat is not much thickened by having been long distended, nothing more need be done, than to lay a small quantity of fine lint * into its cavity; and then covering the wound with a large pledgit and a soft bolster, tie the scrotum up in a suspensory bag. This operation, if properly performed, may be executed in a very few seconds: it requires no other violence, than the mere division of the parts; and if this division be made with a knife, rather than scissars, it will require much less time, and cause much less pain.

The membranous structure of the parts, on which this wound is inflicted; their continuation from the peritoneum; and the great irritability of some of those which are necessarily laid bare, and put under a necessity of receiving dressings, must occasion pain, and symptomatic fever; this it is the business of art to moderate and relieve; phlebotomy, lenient aperitives, febrifuges, and opiates,

radical cure in this manner, have thought that they might lessen the hazard, by reducing the size of the incision; and therefore make a very small one: but whoever depends upon this, will find himself mistaken. An incision made one fourth of the length of the sac will be attended with all the trouble and hazard, which follow one of two-thirds; with this additional inconvenience, that the former will very often prove ineffectual at last.

* By no means to fill, or distend it, or to make any pressure on the testicle; whose tunica albuginea is very irritable, as well as acutely sensible.

opiates, will therefore become necessary. But in this case, as in many others, it will generally be found much more easy to prevent bad symptoms, than to remove them, when they have been permitted to attain a considerable height. The operation is, or ought to be, confined to the young and the healthy, in whom inflammatory symptoms are most likely to occur; but (I believe I may venture to say) to whom we have more efficacious remedies to apply in such disorders, than can be used to people of a different habit, and in different circumstances.

The general induration of all the parts about, the thick tumid lips of the incision, and the general inflammatory enlargement of the scrotum, have for the first four or five days a disagreeable appearance; and may, if neglected or mis-treated, prove very troublesome, or even hazardous; and the kind of discharge, which during that time is made (a thin discoloured gleet) seems very unequal to the reduction of so much tumefaction; but when the febrile symptoms are appeased, and a kindly suppuration begun, let the surgeon have patience, and not by an over-officiousness, or by improper dressings, interrupt nature in what she is about: let him, by warm fomentations, keep the parts clean, and perspirable; let him dress the wound with a small quantity of soft, easy, digestive applications; and covering the whole scrotum * with a soft, warm poultice, suspend

* The impalpable farini feminis lini, put into boiling water, with a proper quantity of ung. sambuc. fresh butter, or lard, is the easiest made, and is the neatest, softest, smoothest, and most relaxing

suspend it in a proper bag ; and he will, in general, soon see a favourable change in all the appearances: he will see the inflammation disappear, the tumor resolve, and all the tumefaction in due time subside. But if he neglects these general cautions, and, under a notion of assisting digestion, goes to work with precipitate, and other irritating dressings, the face of things will not be so agreeable ; the tumor will not subside, and he will continue, or rather create a painful, undigested sore, with all its consequences ; but, for which, he only is accountable.*

In

relaxing application of the kind ; has nothing offensive in its flavour ; nor is it, like most other cataplasms, likely to excite a herpes.

* The great hardness, which almost always attends inflammations of these parts, has (I suppose) been the reason, why so many writers have advised, and so many practitioners still use, such applications, as (though really escharotics) are called dissolvers of induration, and removers of obstruction.

I would be very cautious, how I made objection to what so many have recommended ; and, in a matter of mere speculation, would rather doubt my own judgment, than that of some others : but this is a fact, of which I have too often been convinced, to be mistaken ; and, therefore, I cannot help saying, that it appears to me, that all applications of this kind, even the mildest of them, (the red precipitate) are generally very improperly used ; that they give unnecessary pain ; and retard, what they are used with design to expedite.

Inflammatory hardness and tumefaction is not peculiar to the scrotum, upon its being wounded : it is common to all parts of similar structure ; that is, the adipose and cellular membrane all over the body.

When such parts are irritated by a large wound, they cannot resist a sudden influx ; the consequence of which must, for a time, be obstruction, induration, and swelling : but, one moment's reflection on the natural structure and state of these parts, before such wound was inflicted, or such irritation excited, will prove that ease, relaxation, and free suppuration, must be the intentions proper to be pursued ; and that every application, which either stimulates,
gives

In about six weeks, the scrotum is generally reduced to nearly its natural size ; and when the wound

gives pain, or corrodes, must pervert, and counteract such intentions.

The breasts of women, the axillæ of both sexes, the parts surrounding the intestinum rectum, the cellular membrane in the perinæum, under the integuments of the penis, and in several other parts of the body, are liable to this kind of alteration, when injured ; but this induration is very unlike to a glandular one, and requires very different treatment. In the latter, a destruction of parts is sometimes necessary, and escharotic medicines may therefore be required : but in the former, mere relaxation is all that is wanted : whatever gives ease, and appeases the inflammatory tension, will best produce matter, and answer the purpose which ought to be aimed at.

The most convincing proof of the truth of this doctrine, may be drawn from that case, which, of all those which affect this kind of membrane, is generally the most troublesome. I mean the fistulæ in perinæo. In these, the induration and enlargements of the parts is sometimes so great, as to be very alarming ; hard, callous, excrescences ; deep and long sinuses, with small orifices ; constant pain and irritation, from the lodgment of matter and urine ; a symptomatic fever of the hectic kind ; and a difficulty either of retaining the urine within, or expelling it from the bladder, make a part of the most frequent characteristics of this disease ; and yet, even these cases, terrible as they are, do frequently admit relief, and are sometimes even cured, without any destruction of parts, or the use of any one escharotic application ; a free division of all the hollow and hard parts ; the application of soft, easy digestives, and of a warm, relaxing poultice ; a total abstinence from all such external remedies, as corrode or irritate ; and all such internal ones, as under the title of deobstruents, increase the velocity of the circulation, and waste the patient's strength by watching, purging and sweating ; and an easy and gradual distension of the urethra, by a simple *unmedicated* bougie ; will, in some instances, (indeed in all, where any good can be done at all) remove most of these disagreeable circumstances and appearances : in which cases, a kindly supuration will be afforded by all the divided parts ; a florid, well-conditioned incarnation will be the consequence ; the cicatrix will be small, soft and moveable, and very unlike to what must follow from the use of cathartic applications.

This is really a matter of much greater general importance, than it is supposed to be : the symptomatic fevers, which are either produced or maintained by the injudicious application of painful dressings,

wound is quite healed, the cicatrix is a mere line, correspondent to the original incision; which is a circumstance of more consequence to the patient, than is imagined; especially, if he be obliged to get his bread by labour.

If

ings, are much more frequent than they are thought to be: not to mention the loss of time which they must always cause, and the very disagreeable deformities they often occasion.

The surgery of most of our forefathers was coarse and rough; and many of the practitioners affected a kind of brutal, unfeeling rusticity: the old maxim, "*Dolor medicina doloris*," was so generally received, that the surgeon almost forgot his patient's sensation; and the common people thought they were neglected, if they were not tortured. Lord Bacon's most excellent advice, "*in-veniendum quid natura ferat aut faciat*," was but half remembered; they tried very sufficiently what nature would bear, but very seldom had patience to know what she could do. Under a mistaken notion of going to the bottom of wounds and abscesses, and of dissolving indurations, they crammed and distended the cavities, and corroded and irritated its sides, till a train of bad symptoms were often excited, which the original disease had no share in the production of.

That this is no exaggeration, let their works testify; and that something of this kind is still too much in use, is too well known. All dressings are in fact extraneous bodies; and when they either consist of such materials as give pain, and excite irritation, or are crammed in with injudicious violence, they are foreign bodies, with other mischievous qualities annexed. Where destruction of parts is necessary, the sooner it is executed the better, and the necessary pain must be complied with; but in the application of dressings to the inside of abscesses, to hollows made by the removal of diseased parts, to large sores attended with hardness and inflammation of the common membrane: in short, wherever mere suppuration is required, they cannot be too light, soft, and easy; all that we have to do, is not to obstruct nature in the execution of those offices, to which she is generally fully equal; in which we can lend her no assistance beyond removing impediments out of her way. In the particular case of the divided tunica vaginalis; that degree of thickness and hardness which it sometimes acquires by long distension, is urged as a reason for the use of caustic applications: but this is a method of reasoning to which I cannot agree, having often experienced the contrary. That membrane like all others of the exanguinous kind, is difficult, and slow of digestion, especially

If the tunica vaginalis, containing the water, by long or frequent distension, or from any other cause, is become thick and hard, and cannot therefore contract itself, or be contracted, upon the evacuation of the fluid; it will contribute considerably to the thickness of the lips of the wound, as well as to their hardness, pain, and difficulty of digestion. In this case, the best way is to remove a part of it, on each side, at the time of the operation. The cellular structure of the dartos easily admits this to be done; and when these sides are thus taken away, the lips of the wound consist only of the common integuments. A knife will do this with much more ease and expedition, than any other instrument whatever. The method proposed by the late Mr. Douglass, of doing it by repeated snips of the probe-scissars, is operose, unhandy, and unnecessarily painful and tedious: nor is the cutting away an oval piece of the scrotum, as advised by that gentleman and some others, at all necessary: on the contrary, the more loose that part of the scrotum is, which is to cover the testicle (now deprived of its vaginal coat) the better; as it will be more capable of corrugation.

With these cautions, and under the proper restrictions (already mentioned) this method of obtaining a radical cure is very practicable.

That

especially if altered by disease; but that it will in time become sloughy, digest, and yield a kindly suppuration and incarnation, by the mere use of simple, easy, applications, and without that of any escharotic (not even the red precipitate) I have often and often experienced.

That it is sometimes accompanied by troublesome symptoms, is beyond all doubt; and so is the method by caustic. I cannot say, that I have never seen it prove fatal; nor can that be said of any operation of consequence. Much depends on the choice of a proper subject, and the observance of the necessary means and cautions; without which, both this, and the use of the caustic, will always be troublesome, and sometimes hazardous.

Before I finish the account of this method of cure, I would take the liberty of mentioning one circumstance more, which appears to me to be of consequence. When the quantity of fluid is large, and the scrotum and tunica much on the stretch, I think it is better to discharge the water by mere puncture; and not to perform the operation for the radical cure, until a fresh accumulation has again moderately distended it. The inflammation necessarily consequent upon the division of these parts, just after they have been so much on the stretch, and so suddenly let loose, may be, (and I think I might say, that I have seen it prove) productive of worse symptoms, and a higher degree of fever and tumefaction, than usually occurs, when the same parts are divided in a less distended state.

This method of obtaining a radical cure by incision, of which I have given the fairest and most impartial account in my power, must always be considered as a matter of choice, and never can be an operation of necessity: that is, they who are afflicted with the disease, for

whose cure it is calculated, will always have it in their power to be temporarily relieved by the palliative means, or may make trial of any of the above-mentioned less certain attempts, without incurring any, or a very small degree of hazard. Now as this method can never be said to be totally and absolutely void of some danger ; as it bears the appearance of an operation of some severity ; and as it must always be voluntarily, and deliberately submitted to, without any real necessity from the circumstances of the disease ; in other words, as it must be chosen by the patient, merely to avoid the trouble and inconveniences attending the disorder ; and not necessarily applied to, as some other operations are, to save or preserve life, it does not often happen that we are called upon to practise it.

The number of people labouring under this disease, and who come within the above-mentioned necessary restraints, from age, habit, manner of living, date of the complaint, thickness of sac, &c. &c. &c. is great. And that of those, who either have an insuperable dread of an operation, or are so circumstanced or connected in life, as to make any such degree of danger highly improper to be voluntarily incurred, is still greater : so that by far the majority of those who are afflicted with the disorder, are obliged (however irksome it may be, or however disagreeable it may prove to them) to carry it thro' their life, seeking relief now and then from the palliative remedy of tapping. This renders it to the active and to the laborious, a complaint of more consequence than is generally imagined.

From

From these considerations, I have often been induced to think seriously on the subject, and to make many experiments; the result of which, when likely to prove at all useful to mankind, or creditable to the art of surgery, I shall always think myself obliged to communicate.

Every practicable method proposed by the ancients, I have tried; and have found them in general, painful, fatiguing, hazardous, or inefficacious.

The tent, whether of lint, or sponge, is subject to great objections, both in its first application, and in its future necessary continuance. The cellular structure of the dartos, and the loose connection between the skin and tunica vaginalis, renders its introduction (unless a cannula be used) sometimes difficult. When in, great care must be taken to keep it there for sometime, or the effect intended (an inflammation of the vaginal coat, and albuginea) cannot be obtained; and the means made use of for its distension, as well as the nature of the tent itself (especially if made of sponge) prove frequently very fatiguing, not to say mischievous, by the irritation, and the necessary confinement of the matter. And, after all, I have several times seen it produce only a partial cohesion; and that so small an one, as to prove no cure at all, nor at all prevent the future accumulation of water, or the necessity of frequent tapping.

The cannula, when used for the same purpose instead of a tent, is indeed easily introduced; and when in, does not confine the matter: but then its hardness, inflexibility, and thin edge, and the

absolute impossibility of directing or managing it, in the frequent and necessary motions of the patient, though confined to his bed, renders it a very unpleasant and troublesome guest within the tunica vaginalis; and if, to avoid this inconvenience, a piece of bougie be kept within it, this, while it is there, confines what ought to be discharged.

The point to be aimed at is, to excite such a degree of inflammation, both in the tunica vaginalis and tunica albuginea, as shall occasion a general and perfect cohesion between them: and this, if possible, without the production of slough or abscess; without the hazard of gangrene, and without that degree of symptomatic fever which now and then attends both the caustic and the incision: and which, when it does happen, is so alarming both to the patient and surgeon.

These ends I have frequently obtained, by the use of a seton. It is a method of cure mentioned by Aquapendens, as used by Guido, and others before him; (though their process was somewhat different from mine.) I have several times tried it on subjects of very different ages, some of them more than fifty years old. It requires confinement to bed only for a few days; after which the patient may lay on a couch to the end of the attendance; which is generally finished in about three weeks, or a month at the farthest: and, during all that time, no other process or regimen is necessary, than what an inflammation of the same part from any other cause (for example, a hernia

a hernia humoralis) would require. But for a more particular account of this I must refer the reader to the tract on this subject, which he will find at the end of the present.

S E C T. IX.

The Hæmatocele, or Tumor from Blood.

THIS is a swelling of the scrotum, or of the spermatic process, proceeding from, or caused by blood; and, though spoken of by writers as one simple disease, is liable to so considerable variety, both with regard to nature, and situation, as to admit, or even require, being divided into several kinds.

Such distinction of the different kinds of hæmatocele, though not usually made, is absolutely necessary toward rightly understanding the disease; the general idea, or conception of which, appears to me to be somewhat erroneous, and to have produced a prognostic which is ill-founded, and hasty. According to my conception, and experience, in this matter, the disease, properly called hæmatocele, is of four kinds; two of which have their seat within the tunica vaginalis testis; one within the albuginea; and the fourth, in the tunica communis, or common cellular membrane investing the spermatic vessels.

In passing an instrument, in order to let out the water from an hydrocele of the vaginal coat, a vessel is sometimes wounded: which is of such
size,

size, as to tinge the fluid pretty deeply at the time of its running out: the orifice becoming close, when the water is all discharged, and a plaster being applied, the blood ceases to flow from thence, but insinuates itself partly into the cavity of the vaginal coat, and partly into the cells of the dartos; making, sometimes, in the space of a few hours, a tumor nearly equal in size to the original hydrocele. This is one species.

It sometimes happens, in tapping an hydrocele, that although the fluid discharged by that operation be perfectly clear and limpid, yet, in a very short space of time, (sometimes in a few hours) the scrotum becomes as large as it was before, and palpably as full of a fluid. If a new puncture be now made, the discharge, instead of being limpid (as before) is now, either pure blood, or very bloody. This is another species: but, like the preceding, confined to the tunica vaginalis.

The whole vascular compages of the testicle is sometimes very much enlarged, and at the same time rendered so lax and loose, that the tumor produced thereby has, to the fingers of an examiner, very much the appearance of a swelling composed of a mere fluid, supposed to be somewhat thick or viscid. This is in some measure a deception; but not totally so: the greater part of the tumefaction is caused by the loosened texture of the testis; but there is very frequently a quantity of extravasated blood also.

If this be supposed to be an hydrocele, and pierced, the discharge will be mere blood. This is a third kind of hæmatocele; and very different, in all its circumstances, from the two preceding:
the

the fluid is shed from the vessels of the glandular part of the testicle, and contained within the tunica albuginea.

The fourth consists in a rupture of, and an effusion of blood from a branch of the spermatic vein in its passage from the groin to the testicle. In which case, the extravasation is made into the tunica communis, or cellular membrane investing the spermatic vessels.

Each of these four, I have seen so distinctly, and perfectly, that I have not the smallest doubt concerning their existence, and of their difference from each other.

The tunica vaginalis testis, in a natural and healthy state, is a membrane, which, although firm, is of no great thickness: it is white, or rather of a reddish white colour; and its blood-vessels are (in a healthy state) no more apparent to the eye, than are those of the tunica albuginea: but when it has been long or much distended, it thereby becomes thick, and tough; and the vessels (especially those of its inner surface) are sometimes so large, as to be very visible, and even varicous. If one of these lies in the way of the instrument, wherewith the palliative cure is performed, it is sometimes wounded: in which case, as I have already observed, the first part of the serum which is discharged, is pretty deeply tinged with blood.

Upon the collapſion of the membranes, and of the empty bag, this kind of hæmorrhage generally ceases, and nothing more comes of it. But it sometimes happens, either from the toughness of the tunic, or from the varicous state of the vessel,
that

that the wound (especially if made by a lancet) does not immediately unite; but continues to discharge blood into the cavity of the said tunic, thereby producing a new tumor, and a fresh necessity of operation.

This is what I have taken the liberty to call the first species of hæmatocele, and plainly, and evidently consists in a wound of a vessel of the vaginal tunic.

Upon the sudden discharge of the fluid, from the bag of an over-stretched hydrocele, and thereby removing all counter-pressure against the sides of the vessels, some of which are become varicous, one of them will, sometimes, without having been wounded, burst. If the quantity of blood shed from the vessel so burst be small, it is soon absorbed again, and, creating no trouble, the thing is * not known. But if the quantity be considerable, it, like the preceding, occasions a new tumor, and calls for a repetition of the operation. This I call the second species; which, like the first, belongs entirely to the vaginal coat, and has no concern either with the testicle, or with the spermatic vessels. In both, the bag which was full of water, becomes in a short space of time

* From this cause it very often happens, that the last running (if I may use the phrase) of the water from an hydrocele, is bloody (all the former part having been perfectly clear;) and from hence it is, that a bloody discharge may almost always be produced upon the same occasion, by pressing and handling the scrotum. They, who would see a very ingenious account of this kind of hæmatocele, and a very probable application of the same principle, for the solution of some other appearances in diseases, may find it in the Edinburgh essays from professor Munro, the father.

time distended with blood: which blood, if not carried off by absorption, must be discharged by opening the containing cyst; but in neither of these can castration (though said to be the only remedy) be ever necessary: the mere division of the sacculus, * and the application of dry lint, to its inside, will, in general, if not always, restrain the hæmorrhage; and answer every purpose, for which so severe a remedy has been prescribed. The other two are indeed of more consequence; they interest either the testicle itself, or the vessels by which it is supplied with blood, and rendered capable of executing its office; and are sometimes not curable, but by removal of the part.

One of these is seated within the tunica albuginea of the testicle; the other in the tunica communis of its vessels: they are neither
of

* It may indeed happen, that the blood of the patient may be in such state as to be incapable of coagulation: in which case, the hæmorrhage will continue from the inside of the sac, although it be laid open; and also from all the divided parts. This circumstance, though a very hazardous one, cannot be foreseen; nor do I know, in this state of the juices, what benefit can arise from the removal of the testicle: for the hæmorrhage will certainly be continued, from all parts of the wound necessary in such operation, upon the same principle, and for the same reason that it could not be restrained from the inside of the sac. Such an indisposition of blood is often, in cachectic habits, the cause of very troublesome and fatal hæmorrhages, at some distance of time from amputation, as well as immediately. If this want of an agglutinant quality in the blood is not corrected, or is not capable of correction, it generally goes hard with the patient, let the operation be what, or where it may: for it is not merely the suppression of the bleeding that is required: the same ill quality of blood will prevent suppuration, produce bloody, sanious gleet, gangrene and mortification. This is an evil: of which every practitioner must have seen so many instances, that it is needless to produce particular ones.

of them very frequent; but when they do happen, they call for all our attention.

If blood be extravasated within the tunica albuginea, or proper coat of the testicle, in consequence of a great relaxation, and (as it were) dissolution of part of the vascular compages of that gland; and the quantity be considerable, it will afford or produce a fluctuation, to the hand of an examiner, very like to that of an hydrocele of the tunica vaginalis; allowing something for the different density of the different fluids, and the greater depth of the former from the surface.

If this be mistaken for a simple hydrocele, and an opening be made, the discharge will be blood; not fluid, or very thin; not like to blood circulating through its proper vessels, but dark, and dusky in colour; and nearly of the consistence of thin chocolate (like to what is most frequently found in the imperforate vagina.) The quantity discharged will be much smaller than was expected from the size of the tumor; which size will not be considerably diminished. When this small quantity of blood has been so drawn off, the testicle will, upon examination, be found to be much larger than it ought to be; as well as much more loose and flabby; instead of that roundness and resistance arising from an healthy state of the gland, within its firm strong coat; it is soft, and capable of being compressed almost flat, and that generally without any of that pain and uneasiness, which always attend the compression of a sound testicle.

ticle. If the bleeding ceases upon the withdrawing the cannula (supposing a trochar to have been used) and the puncture closes, a fresh accumulation of the same kind of fluid is soon made, and the same degree of tumefaction is produced, as before the operation: if the orifice does not close, the hæmorrhage continues, and very soon becomes alarming.

In the two preceding species, the blood comes from the tunica vaginalis, the testis itself being safe, and unconcerned; and the remedy is found, by opening the cavity of the said tunic: but in this, the hæmorrhage comes from the substance of the testicle; from the convolutions of the spermatic artery, within the tunica albuginea: the division of the vaginal coat can here do no good; and an incision made into the albuginea can only increase the mischief: the testicle is spoiled, or rendered useless, by that kind of alteration made in it, previous to the extravasation; and castration is the only cure, which a patient in such circumstances can depend upon.

The last species of this disease arises from a bursting of a branch of the spermatic vein, between the groin and scrotum, in what is generally known by the name of the spermatic process. This, which is generally produced by great, or sudden exertions of strength, feats of agility, &c. may happen to persons in the best health, whose blood and juices are in the best order, and whose genital parts are free from blemish or disease.

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The effusion, or extravasation is made into the cellular membrane, which invests and envelopes the spermatic vessels, and has something the appearance of a true hernia. When the case is clear, and the extravasated blood does not give way to discutient applications, the only remedy is to lay the tumor fairly open, thro' its whole length. If the vessel or breach be small, the hæmorrhage may be restrained by mere compression with dry lint, or by the use of stiptics; but if it be large, and these means do not succeed, the ligature must be made use of. If the bleeding branch can be tied singly, the testicle may be preserved; if it cannot, and the whole spermatic process must be included, it is unnecessary to add, that the testicle must be removed,

C A S E XXV.

A Healthy man, about thirty years old, desired me to let out the water from an hydrocele; which operation, he said, had, for some time past, been performed upon him twice a year, by the late Mr. Bell of Red-Lion-Square; and he desired also, that I would do it with a lancet. I let out near a pint, the first part of which was deeply tinged with blood; but as it ran, it became clearer and clearer, and at last was perfectly limpid; and when I put on the plaster, he did not bleed a drop. The next morning, he came to me again;

gain; told me that he had bled a good deal in the night; and shewed me his linen, which was very bloody. As there was no discharge at this time, I only renewed his plaster, put him a bag-trufs on, and desired that he would go home, and keep quiet. He remained free from hæmorrhage for some hours; and therefore neglecting my last caution, he walked about a good deal, and heated himself, and the next day sent for me to look at his scrotum; which was large, and full: making no doubt, from all the circumstances, that the tumefaction was from blood, I told him my opinion; and, at the same time, advised, if it did not dissipate, by proper attempts for that purpose, to submit to have the vaginal coat laid open, and thereby obtain a radical cure.

Some time was spent, in attempting discussion; during which, the tumor increased, and he, now and then, bled pretty freely from the orifice; which became spongy, and would not heal.

Finding all endeavours ineffectual, he submitted: the tunica vaginalis was laid open; a considerable quantity of blood was discharged (some in a fluid state, but principally grumous;) he had no disagreeable symptoms; and, in about six weeks, was perfectly well.

CASE

C A S E XXVI.

AN elderly man, who had often had a large hydrocele tapped at the hospital, came one day, as usual : I made a puncture with a lancet, and let out the water ; but was near half an hour, before I could stop an hæmorrhage from the wound.

The next day he came again and complained to one of my dressers, that he had bled more or less, all the night. He was properly dressed ; the bleeding restrained ; and he was advised to go home, and keep quiet upon the bed.

The third day, when I was again at the Hospital, he came and shewed me his scrotum ; which was as full, and as large, as when I first tapped it : the orifice was not healed ; and, upon pressure, blood was discharged from it. He said, that he could not afford to rest from his labour ; and my week for accidents being expired, Mr. Crane took him under his care.

He (finding the bloody discharge still continued, notwithstanding the man kept in bed, and was properly taken care of) made a free incision into the tumor ; turned out a good deal of coagulated blood with his finger ; and then, lightly filling the cavity with lint, obtained a suppression of the hæmorrhage, and produced a radical cure.

C A S E XXVII.

A Gentleman who used to come to London about every five or six months, to have a large hydrocele emptied, came to me under a great alarm.

Having often had the water drawn off by puncture in London, he determined to let the apothecary of the village where he lived do it for him, and thereby save him the trouble of a journey. The operation was very properly performed, and the bag perfectly emptied; but the next morning, to his great astonishment, he found it as full as before. His apothecary was as much surprised as himself; and the patient got into a post-chaise, and came immediately to London.

Upon hearing this account, and seeing and feeling the tumor, I made no scruple of declaring it to be blood; and that if it did not soon dissipate by rest, and proper applications, it must certainly be let out.

All attempts for dispersion proved fruitless, the tumor increased, and as his health and habit were good, and his age by no means advanced, I advised him to submit to an incision; by which I hoped that he would not only get rid of the present evil, but would most probably obtain a radical cure. He complied, upon condition that I would first by puncture satisfy him that I was right in my conjecture with regard to the contents.

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I passed a lancet into the fore part, and gave discharge to a clear blood: while that was running out, I made, by means of a probe-pointed knife, an incision of sufficient size, to admit a dofsil or two of fine lint. For a day or two, the symptoms were untowardly, and the discharge was large, and bloody; but by proper care, keeping very quiet, and taking freely of the bark with elixir vitrioli, every thing ended well.

C A S E XXVIII.

A Lusty healthy man, about forty, who had the care of a manufacturer's warehouse in my neighbourhood, consulted me on account of a large hydrocele of the tunica vaginalis. The tumor was very large, the parts considerably on the stretch, and I advised him to have it tapped directly.

About twenty ounces of clear water were drawn off by means of a trochar, without the appearance of a drop of blood. As he had carried his burthen long, and had never been relieved from it before, he was much surpris'd at this immediate ease, and went to work as soon as he got home.

The next morning he came to me much alarmed, and shewed me his scrotum; which was full half as big as before the puncture had been made. I had no doubt, that its present content was blood; and was very apprehensive that it might require the same treatment, as the preceding case; which

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in his constitution, and manner of living, must have been attended with hazard.

I ordered him home to bed immediately ; took some blood from his arm, and directed a cooling purge to be taken next morning : the scrotum was suspended, and wrapped in a rag, folded seven or eight times, and wetted in a solution of sal. ammon. crud. in vinegar and water, and he had direction to keep it constantly wet. On the third day I bled him again, and ordered him another purge for the fourth ; and continued the same application.

Finding the swelling quite at a stand, and imagining that by mending his state of blood, a farther effusion might possibly be prevented, and an opportunity given for the absorption of what was already shed, I advised him to take a dram of the cortex every six hours : this he did for as many days ; during which, the tumor visibly lessened : and, by persisting in the same method, he got well : that is, all that degree of tumefaction, which, I suppose to have been caused by blood, disappeared. After some months the scrotum became large again ; and he followed the advice which I had given him, viz. to have the fluid drawn off, before it attained too large a size. I have several times since tapped it, and always have drawn off a clear fluid.

C A S E XXIX.

A M A N, about forty-seven, of a fallow complexion, and subject to cholicky complaints, had the water drawn off from a hydrocele of the vaginal coat, by means of a small trochar. The quantity was near a pint, and the bag was perfectly emptied. The next morning, it seemed to contain a fluid, although in no great quantity: he shewed it to the person who tapped him the day before, and who advised him to put on a bag-truss, and to take a smart purge. In three days it was so manifestly increased as to alarm the patient, and make him desirous of farther advice.

On the sixth day from the first operation, I saw him, and found the scrotum so much enlarged, that I made no doubt, the vaginal tunic contained at least seven ounces; which I suspected to be blood.

I advised a discutient application, and the free use of the cortex; but this did not suit the humour, either of the patient, or of his surgeon. He took three or four purges of rad. jallap. and made use of a warm fomentation. At the end of about a month, I was desired to see him again. The tumor was larger, and his strength impaired by his purging. It appeared to me to be now of such a size, and in such a state, that nothing but the operation could serve him; and for which I prepared him, if the puncture should produce a discharge

discharge of blood only. An opening was made with a lancet, and the discharge was clear fluid blood: I would have proceeded, but the patient would not permit me: and he was dressed with a superficial pledgit, and a plaster.

Blood oozed from the orifice all that night, and part of the next day; and when I saw him again; he could not have lost less than a pint.

I was well aware, what might be the consequence of a division of the tunica vaginalis, in such a habit; but, at the same time, it seemed to be the unicum remedium, for he would take no medicine. The hæmorrhage continuing another day, he submitted. The operation discovered no one bleeding vessel; nor did I imagine that it would, being convinced that it came from the inside of the tunic. He was dressed with dry lint, and put to bed with an opiate; all that night, and the succeeding day, the discharge was large, and bloody: and the lips of the incision, on the second, were flabby and free from inflammatory tumefaction. I told him my opinion freely, and pressed him to take the bark, or have more assistance; both which, at that time, he refused to do.

On the close of the third day, the hæmorrhage still continuing, he becoming sick and faint, and his pulse failing a little, he was alarmed, and permitted us to direct for him. A draught, consisting of a dram of bark, half a dram of confect. cardiac. and three or four drops of tinct. thebaic. was ordered to be taken every four hours.

Not to make the account tedious, by a relation

on of every minute circumstance, he persisted in this method, and it was four days before the bleeding ceased, or the edges of the incision became inflamed, or shewed any tendency toward suppuration. But at last, with some difficulty he got well.

C A S E X X X .

A Labouring man, who had fallen down in the street, with a load on his back, was brought into St. Bartholomew's Hospital, on a suspicion of his having got a rupture, in consequence of his fall; he having immediately perceived a swelling in his groin, and scrotum, which he had not before.

The tumor seemed to occupy the whole spermatic process; which was so enlarged by it, that it was impossible to feel the passage of it from the abdomen, through the muscle: but the testicle below it was perfectly distinct.

The appearance of a tumor, the suddenness of its formation, the distinct situation of the testicle below, and an accidental circumstance, of the man's not having had a stool for two days past, inclined Mr. Freke (whose week it was) to believe it to be, and to treat it as, a rupture. He made some attempts for reduction: and, finding them fruitless, determined upon the operation immediately.

He divided the skin and membrana adiposa, down to what he took to be the hernial sac; and
when

when he had so done, had a mind to endeavour at the return of the intestine, without opening the sac.

Mr. Freke was a man not easily to be dissuaded from what he had a mind to do; and, having got the whim into his head, was determined to make the experiment on this, which he thought a fair case for the purpose. Accordingly (with his probe-scissars) he divided the tendinous opening in the abdominal muscle; and then again tried to reduce the gut, but to no purpose; for nothing would go up. At last though with much reluctance, he was obliged to lay open the containing membrane. He had no sooner done this, than a large quantity of blood, (partly fluid, and partly grumous) burst forth, and the whole tumor subsided; leaving the process perfectly free; and containing neither intestine, nor omentum.

The parts were now washed clean, and diligent search made for the breach whence this blood issued; but none could be found; the man was dressed with lint and pulv. boli armen. (a method of dressing which Mr. Freke was fond of) and in a proper space of time, the man got well without any new hæmorrhage.

In this case some of the circumstances might be said to render an intestinal hernia not improbable; and the want of stools might have increased such probability: but then, it should have been considered, that, although this be one symptom of the strangulated intestine, yet it is not, by any means, an univocal, or infallible one. A want of stools may happen from other causes, even in a person who has a rupture, but cannot singly be a reason

reason for the operation immediately; which ought to be indicated and authoris'd by other concomitant symptoms and appearances. A costive habit may attend a person, who has an intestinal hernia, when the gut labours under no stricture, and does its office perfectly well in the scrotum; but such patient will not have the symptoms of an incarcerated intestine; nor indeed, had this man. His not having been at stool two days before, was an accidental circumstance; which might or might not have been occasioned by the descent of a piece of the intestinal canal: the truth of which should have been proved by the use of a clyster, and a purge, before an operation had been performed.

C A S E XXXI.

A Young fellow, straining to get rid of a hard stool, felt a sudden pain in his left groin; and, upon examination, found a swelling, extending from thence into the scrotum. He took it for a rupture, and immediately applied to an advertising operator; who, after several unsuccessful attempts to reduce it, put a truss on him; and told him, that the tumor would gradually shrink to nothing. The truss he wore for some days; when, finding both his pain and swelling increase, he applied to a surgeon in his own neighbourhood; with whom I saw him.

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The tumor was large, and had somewhat the feel of an omental hernia; the abdominal aperture seemed to be dilated by it; the testicle was tolerably distinct below; his pain in an erect posture was considerable,; but in a supine one very little: he had neither heat, nor quickness of pulse, nor hiccough, nor vomiting; and had been thrice at stool that day.

As there was no reason for supposing any degree of stricture on the intestinal canal, I advised the keeping him in bed, bleeding him freely, and trying what a proper poultice would do.

This method was tried, for several days; but without any benefit: on the contrary, the pain increased, as well as the tumor; and a fluctuation within became palpable.

This fluid, I thought possibly might be collected in the sac of an omental hernia (a case which I had more than once seen) and as there was plainly enough in quantity to render a puncture perfectly safe, we made one with a lancet, and let out some ounces of clear blood.

When the swelling was thereby lessened, we felt for the spermatic vessels, but could discern them very indistinctly; and the process seemed much loaded, and enlarged.

Next day, the man was perfectly well in health; but the scrotum looked swelled, and black, as if it had been much bruised: he had also, bled from the puncture, which was not closed,

closed, and discharged blood freely, upon any pressure being made above.

Though we were in some doubt, concerning the true nature of the case ; yet, it was clear, that if the hæmorrhage continued, the part must be laid open.

For three or four days it continued, notwithstanding all our endeavours ; and, at last, it was so considerable, as to indicate the operation immediately.

A knife was introduced into the orifice made by the lancet, and an incision of some length made ; but no sacculus, no particular cavity found ; nothing like an hernial sac, or tunica vaginalis testis ; in short, nothing but cellular membrane ; which satisfied us, that the blood must come from the spermatic chord.

As the bleeding still continued, and was derived from a part above our incision, we continued it quite up to the groin, and found that all the cellular membrane of the process was loaded with extravasated blood ; and that it came from a considerable breach now in view. We dressed it with lint, pressed out from a styptic, and intended to have permitted that dressing to have remained on for a day or two : but we were soon sent for on account of an alarming return of the hæmorrhage ; which had been so considerable, as to produce a swoon.

Castration appeared to us, to be the only remedy ; and it was immediately performed.

CASE

C A S E XXXII.

A Middle-aged man came to St. Bartholomew's Hospital, and desired me to look at a swelling in his groin, and upper part of the scrotum on the right side; which, he said, came suddenly, by lifting a heavy weight. From the groin quite down to the testicle, the spermatic process was enlarged; he had no symptoms of a hernia; and the testis was much too distinct and free for a hydrocele.

While I was examining it, I perceived some blood to drop from the lower part of the swelling; and, upon enquiring the reason, he told me, that a puncture had been made in it, a day or two before (upon a supposition that the swelling was from water;) that it had, at intervals, bled ever since; but that since it had last stopped, the tumor was increased. From these circumstances, I concluded the swelling to be caused by blood, shed into the tunica communis, from a branch of a varicose spermatic vein.

He submitted to have it laid open; no particular breach was discovered; though the whole membrane was much loaded: the wound was dressed with lint pressed out from spirit. vin. These dressings were suffered to remain on, until they were separated by a beginning suppuration: and by keeping quiet,
and

and being properly taken care of, the man got well without any return of hæmorrhage.

C A S E XXXIII.

A POOR man was brought to my house, by a gentleman of the profession, for my opinion concerning a tumor of the scrotum.

The swelling was large, of a globular kind of form; painful, not only in general from its weight, but often even when suspended, or when the patient was in bed. It palpably contained a fluid; but the fluctuation of that fluid was not (to my fingers) like the fluctuation of water. In all the posterior part of the tumor, an enlarged, and somewhat hardened testicle might plainly be distinguished; and the general weight of the whole, far exceeded that of any hydrocele I had ever met with of equal size. That it was not a mere simple hydrocele, I was very clear: but, whether it was a collection of fluid in the tunica vaginalis of a diseased testicle (what is in general called a hydro-sarcocoele) or what other morbid or altered state of parts it might be owing to, I would not pretend to say. A puncture was made in it with a small trochar, and about four ounces of dark-coloured blood, not so fluid as blood generally is while circulating in its proper vessels, was drawn off; a bit of plaster and lint was

was applied to the orifice, and the man went about his business.

In two days, the same surgeon brought the man to me again. The puncture was healed; but the tumor was as large as when I had seen it two days before, and palpably contained the same kind of fluid. What that was we knew, and the consideration was, what was the properest method of giving the man relief. Had he been in good health, I believe, I should have advised laying the tumor open; at least so far as to have obtained a more precise knowledge of its nature: but the patient's age, and general health were such, as would by no means make an operation of that sort an eligible thing. He was near to sixty; asthmatic, had drank freely, and had a yellow countenance, and swelled legs in consequence of it. I advised him to come into the hospital, and try, whether by proper care his habit might not be mended. Soon after his admission, I had a mind to see, whether the contents of the tumor were really the same as before, and made a puncture in it again with the trochar: the discharge was again blood; and it was two days from this operation, before a bloody discharge from the orifice ceased.

A continuance of dram-drinking brought on a general anasarca, and an extravasation of water in the abdomen; and when he had been in the hospital about two months, he died.

I would not omit the opportunity of examining his scrotal disorder; and found, that the trochar had, at each operation, pierced the
tunica

tunica albuginea, that the bloody extravasation was within that coat ; that the tunica vaginalis was almost universally, though slightly, adherent to the surface of the albuginea ; that the vascular compages of the whole testicle was much enlarged, and at the same time so loosened, that a part seemed to have been dissolved into the fluid which produced the fluctuation, which fluid was mere blood ; and that the epididymis was hardened, and very considerably enlarged.

I have since had an opportunity of seeing a patient labouring under the same complaint ; whose testicle was rather hastily, and inadvertently laid open ; that is, divided. The immediate consequence was a large, and obstinate hæmorrhage. Whether it was produced by the division of the substance of the testicle, or by the irritation of such applications as were made use of for stopping the bleeding, I will not pretend to say : but when I saw him, he had a rigid neck ; and was (what is commonly called) jaw locked. Castration, from the state in which his testicle was when I saw it, must have been the only remedy for his local complaint ; but his spasmodic attack rendered that improper, and every thing else fruitless.

I have also (from a very ingenious practitioner of my acquaintance) received an account of a similar case ; in which the testicle was divided, and the hæmorrhage (from the patient's obstinate refusal to submit to the operation of castration) proved at last fatal.

S E C T.

S E C T. X.

TO the different kinds of hydrocele, which have already been mentioned, some of the modern French writers have added another, viz. that which is formed by a collection of fluid, in the sac of a true hernia.

The title of this clearly describes its true nature; and therefore I shall only inform the reader, of what has fallen within my own knowledge relative to this disease.

C A S E XXXIV.

A Young fellow, about twenty-five years old, applied to me, on account of a swelling in his scrotum. It was large, of an irregular figure, not very tense, perfectly indolent, and accompanied with a remarkable fulness of the spermatic process.

The account which he gave of himself was, that he had had a rupture, as long as he could remember: that he had, on that account, worn a steel truss for many years; that, upon taking his truss off, his rupture always came down immediately, and was very easily returned up again; that it had never occasioned any obstruction in his stools, nor given him any pain; that, about a year ago, he had been persuaded to leave his truss off, and to substitute

substitute in its place, a bandage made of dimitty, without any iron in it; but which had been buckled on very tight: that, when he had worn this bandage about six months, he found that his rupture was down, and that he could not get it up again; that upon this, he applied to the person of whom he bought the bandage; who, after having ineffectually tried to reduce the rupture, sold him another bandage, and buckling it on still tighter than the first, assured him, that it would never do him any harm; that from the time of putting on this second, his scrotum had gradually become larger, with considerable pain and uneasiness.

From the feel of all the lower part, I made no doubt, that the tumor contained a considerable quantity of fluid; and had there been no other circumstance to influence my judgment, I should have supposed the disease to have been a hydrocele of the tunica vaginalis testis: but the very distinct and particular account, which the man gave of himself, and the feel, and the appearance of the spermatic process, made me hesitate.

Whatever might be the true nature of the case, a fluid there certainly was; and that in quantity sufficient to render the discharge of it both safe and warrantable. I made a puncture in the middle and anterior part, and let out above a pint of brown serum. This discharge removed all the swelling from below; but made little or no alteration, either in the look, or the feel of the upper part of the process. I endeavoured to reduce it; but found it impracticable, and desisted; advising the man to let it alone, to wear no bandage of any kind; and

and if at any future time it became troublesome to him, I desired that I might see it.

In about a year's time, he came to me again, with his scrotum as big as before, and palpably containing a fluid.

As I had felt the testicle very plainly after the first operation, and as I did not believe the tumor in the process to be formed by the intestine, I advised him to have the whole laid open. He submitted, and I took him to the hospital for that purpose. I made an incision, from the middle and anterior part of the scrotum, quite up to the groin, and found in the lower part of the bag, which contained the fluid, the testicle covered only by its proper coat, or tunica albuginea; and in the upper part, or neck of the same bag, a considerable portion of omentum. The upper part of this portion of caul was hardened in its texture, and so perfectly adherent to every point of the neck of the sac, as to prohibit the return of even a fluid from thence into the belly: but the lower part was in its natural state, loose, soft, and capable of being expanded. All the lower, or loose part, I cut off, without making a ligature, or being troubled with any hæmorrhage; the upper part I left as I found it; filled the wound lightly with dry lint, and treated the case as I should have done that of the radical cure for an hydrocele. In about seven weeks the man got well, and has ever since remained so.

This man's rupture was of the congenial kind; and therefore the sac of the hernia, and that

that of the hydrocele, were the same, viz. the tunica vaginalis testis.

C A S E XXXV.

WHILE the first edition of this book was in the press, Mr. Spray desired me to visit a patient with him, who had some pressing symptoms of a strangulated rupture.

The patient was a healthy young man, about twenty-two years old, and he gave the following account of himself :

That as long as he could remember, he had been subject to a rupture, which never came lower than his groin ; was always easily put up, and had never given him any trouble : that he had when a child, worn a truss ; but, either from its being ill-made, or from his not knowing how to put it on, it had never answered the purpose ; and that he had, for some years, refused it ; that, for a month or two past, his rupture had been constantly down ; and that, within that space of time, he had never been able to return it, though he had often tried ; that still, as it gave him no pain, nor produced any other inconvenience than the mere swelling of the scrotum, he had taken no notice of it, nor applied to any body for assistance, until within the last three days ; since which he had been affected with great pain in his belly, a stoppage of stools, and a vomiting.

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The lower part of the scrotum was much enlarged; contained a considerable quantity of fluid; and bore very much the appearance of a hydrocele; but the upper part, or spermatic process, was hard, and painful, and seemed to be girt tight by the tendon of the abdominal muscle. This, added to an extreme tightness of his belly, want of stool for three days past, anxiety, restlessness, vomiting, and a beginning hiccough, determined me to propose the operation immediately.

The lad consented, and I made an incision from the upper part of the tumor, just above the abdominal opening, quite down to the bottom of the scrotum.

Having carefully divided the cutis and common membrane, I came to what appeared to be a hernial sac; this I opened, and thereby let out about half a pint of clear limpid water; upon the discharge of which, the whole tumor of the scrotum subsided; and my assistants were convinced, that I had mistaken a hydrocele for a hernia. But although the whole of the swelling of the scrotum was entirely dissipated by the discharge, yet the tumor and hardness about the abdominal opening was unaltered, and the patient's pain the same. With a probe-pointed knife I laid open the whole sac, whence the water had proceeded, quite down to its bottom; and found the naked testicle within it: this gave the disease still more the appearance of a hydrocele, and I began to think that it was so; but upon passing my finger up, to examine the state of the

abdominal tendon, I found a small portion of intestine engaged in it, and bound extremely tight; I lengthened the incision, so as to have a fair view of it, and thereby we all became thoroughly satisfied of the true nature of the case. The piece of intestine was small, a good deal darkened in colour, and bound so tightly by the tendon, that it was with great difficulty that I could introduce my finger for the conveyance of the knife. When I had made a sufficient dilatation, I endeavoured to return the gut; but could not execute it, although there was no obstruction from the tendon. I drew out some inches of it, thinking, that I might thereby be enabled to make the return more easily; that which I drew out, I replaced with the utmost ease; but could not disengage the small portion which made the original disease. At last, passing my finger round in the dilated opening, I found that the intestine adhered to the lower border of it, by a small membranous filament; upon the division of which, the gut slipped in immediately.

The young man had stools very soon; and, by proper care, very soon got well.

This also was a congenial hernia; the sac which contained the intestine, the fluid, and the testicle, being the tunica vaginalis: but had I been contented with merely dividing the tunic, and had not proceeded in the examination and division of the abdominal tendon, the lad would have been destroyed by the stricture.

S E C T.

S E C T. XI.

THE rest of the false herniæ (as they are called) are the pneumatocele, the varicocele, the cirfocele, and the farcocele; to which, some have added the hydro-farcocele.

The first of these is (as I have already said) a mistake: there is no hernia produced by mere wind. The two diseases which, in newborn children, and infants, are taken for, and called wind-ruptures, are, a tumor produced by a small quantity of fluid remaining in the lower part of the tunica vaginalis, after its communication above with the cavity of the belly is closed; and a true (but small) intestinal hernia.

The varicocele, is a dilatation of the blood-vessels of the scrotum. These are of different size, in different people; and, like the vessels in other parts of the body, are liable to become varicose; but are seldom so much enlarged as to be troublesome, unless such enlargement is the consequence of a disease, either of the testicle, or of the spermatic chord. When this is the case; the original disease is what engages our attention, and not this simple effect of it; and therefore, considered abstractedly, the varicocele is a disease of no importance.

The cirfocele, is a varicose distention and enlargement of the spermatic vein; and, whether considered on account of the pain which

it sometimes occasions, or on account of a wasting of the testicle, which now and then follows it, may truly be called a disease. It is frequently mistaken for a descent of a small portion of omentum. The uneasiness which it occasions is, a dull kind of pain in the back, generally relieved by suspension of the scrotum. It has been resembled to a collection of earth-worms; but whoever has an idea of a varicose vessel, will not stand in need of an illustration by comparison. It is most frequently confined to that part of the spermatic process, which is below the opening in the abdominal tendon; and the vessels generally become rather larger, as they approach nearer to the testis. In books are to be found prescriptions for lessening the distended veins; but I cannot say, that I ever saw any good effect, from external applications of any kind.

In general, the testicle is perfectly unconcerned in and unaffected by this disease; but sometimes it happens, that it makes its appearance very suddenly, and with acute pain; requiring rest and ease: and sometimes, after such symptoms have been removed, I have seen the testicle so wasted, as hardly to be discernible.

C A S E XXXVI.

A Young fellow, on a journey, found himself one evening more than ordinarily tired; and, as soon as he got to bed, was seized with

with a violent pain in his back ; which (to use his own words) shot down into his stone.

The pain was so great, as to oblige him to send for somebody immediately, [who bled him freely ; this produced no relief, nor was the pain yet attended with any tumor of the scrotum, or testicle ; or by any appearance whatever of the parts affected. The pain continued, without remission, all the next day : he was again let blood, had a clyster, and a gentle purge. On the third day, toward evening, the pain totally left him, and a fulness appeared in the groin, tending down toward the testicle : this made him so uneasy, that, finding the apothecary, who had the care of him, did not seem clearly to know what it was, he got into a post-chaise, and came home to London.

His journey brought on a return of pain : but by losing some more blood, keeping in bed, applying an emollient poultice to the groin, and suspending the parts in a bag-truss, he became easy, and all the tumefaction dispersed ; except a small fulness of the spermatic chord, occasioned by the varicose state of its vessels. But the testicle was so diminished, as to be hardly perceptible ; and remains so, to the time of my writing this.

C A S E XXXVII.

AN ostler, at an inn in Smithfield, was, by the fall of a horse, thrown over his head, and his groin struck against the pommel of the
the

the saddle. It gave him exquisite pain; and he was brought immediately to the Hospital, upon a supposition that he had burst himself.

Upon examination, no swelling appeared, either of the testicle or of the spermatic chord; but the pain (which he said was exquisite) was confined to that part of the latter, which is between the testicle and the groin.

He was largely blooded, had a clyster, and a purge: his pain continued two days; and when it left him, the spermatic vessels became greatly varicose. No application, which was made use of on this account, proved at all beneficial; that is, rendered the distended vessels at all less; and when he left the Hospital, he was perfectly free from pain: but his testicle, on that side was scarce discernible.

I once saw the same effect, from the injudicious application of a truss, on a true cirfocele, the vessels, by means of the pressure, became enlarged to a prodigious size, but the testicle shrunk to almost nothing.

C A S E XXXVIII.

A Young gentleman about twenty-five years old, after having heated himself much with exercise, went too soon into a river to bathe. In the middle of the ensuing night, he was seized with a coldness, and shivering; which were followed with great heat, and thirst, and a slight sweat. He sent for a surgeon, who bled him and
gave

gave him a clyster, bid him keep in bed, and drink plentifully. Next day he gave him a laxative medicine, and some febrifuge draughts.

For three days, his fever was unremitting; but on the fourth he became cooler, and was seized with a most acute pain in his loins; for which he was again bled, and purged. On the fifth day, his back became easy; but both testicles tho' very little swollen, were so tender, as hardly to admit the touch; and, in a very few hours, the spermatic vessels were so distended, as to make an apparent tumor. By means of fomentation, poultice, and rest, all uneasiness was removed, in about a fortnight; but, at the end of that time, both patient and surgeon were excessively astonished, at not being able to find the testicles. The latter came to London immediately, and desired me to examine him, after having given me the preceding account.

The spermatic vessels were full, and varicose; the vasa deferentia too large, and rather too hard; as were also the epididymies; but there was not, on either side, the least appearance of a natural testicle: a flattened, compressed kind of membranous substance (which, I suppose was the tunica albuginea) seemed to hang from each epididymis; but there was not any trace or vestige of the glandular or vascular parts of either testis.

This is the only time, I ever saw this complaint on both sides, in the same subject.

S E C T. XII.

The Sarcocoele, or diseased Testicle.

THIS is a disease of the body of the testicle; and, as the term implies, consists, in general, in such an alteration, made in the structure of it, as produces a resemblance to a hard fleshy substance, instead of that fine, soft, vascular texture, of which it is, in a natural and healthy state, composed.

The antient writers have made a great number of distinctions, of the different kinds of this disease, according to its different appearances, and according to the mildness or malignity of the symptoms, with which it may chance to be attended. Thus, the sarcocoele, the hydro-sarcocoele, the schirrhous, the cancer, the caro adnata ad testem, and the caro adnata ad vasa, which are really little more than descriptions of different states and circumstances of the same disease, are reckoned as so many different complaints, requiring a variety of treatment, and deriving their origin from a variety of different humors.*

Every

* “ Humores crassi sunt duo, pituita et melancholia, e quibus
 “ tum schirrho in aliis partibus, tum indurationes carneæ in testi-
 “ culis oriuntur. Tumor hic est durus, tactui renitens, indolens,
 “ et si exquisitus sit schirrhous, sensu caret. Si a melancholia oria-
 “ tur, color sublividus; si a pituita, colorem cutis non mutat; si
 “ a melancholia superaffata, dolor punctorius, et inequalis tumor;
 “ hic durus, ibi mollis.”

FAB. AB AQUA.

Every species of *sarcocoele* consists primarily in an enlargement, induration, and obstruction of the vascular part of the testicle; but this alteration is, in different people, attended with such a variety of circumstances, as to produce several different appearances; and to occasion the many distinctions which have been made.

If the body of the testicle, though enlarged, and indurated to some degree, be perfectly equal in its surface, void of pain, has no appearance of fluid in its *tunica vaginalis*, and produces very little uneasiness, except what is occasioned by its mere weight, it is usually called a simple *sarcocoele*, or an indolent *schirrhus*. If, at the same time that the testis is enlarged, and hardened, there be a palpable accumulation of fluid in the vaginal coat, the disease has by many been named a *hydro-sarcocoele*. If the lower part of the spermatic vessels, and the *epididymis* were enlarged, hard, and knotty, they supposed it to be a fungous or morbid accretion, and called it the *caro adnata ad vasa*; if the testicle itself was unequal in its surface, but at the same time not painful, they distinguished it by the title of *caro adnata ad testem*: if it was tolerably equal, not very painful, nor frequently so, but at the same time hard and large, they gave it the appellation of an occult or benign cancer: if it was ulcerated, subject to frequent acute pain, to hæmorrhage, &c. it was known by that of a malignant or confirmed cancer. These different appearances, though distinguished by different titles, are really no more than so many stages (as it were) of the same kind of disease; and depend a great deal on several accidental circumstances; such as
age,

age, habit, manner of living, &c. It is true, that many people pass several years with this disease, under its most favourable appearances, and without encountering any of its worst; but, on the other hand, there are many, who, in a very short space of time, run through all its stages. They, who are most conversant with it, know, how very convertible its mildest symptoms are, into its most dreadful ones; and how very short a space of time often intervenes between the one and the other.

There is hardly any disease, affecting the human body, which is subject to more variety than this is, both with regard to its first manner of appearance, and the changes which it may undergo.

Sometimes the first appearance is a mere, simple, enlargement, and induration of the body of the testicle; void of pain, without inequality of surface, and producing no uneasiness, nor inconvenience, except what is occasioned by its mere weight. And some few people are so fortunate, to have it remain in this state for a very considerable length of time, without visible or material alteration. On the other hand, it sometimes happens, that very soon after its appearance in this mild manner, it suddenly becomes unequal, and knotty; and is attended with very acute pains, darting up to the loins and back; but still remaining entire, that is, not bursting through the integuments. Sometimes the fury of the disease brooks no restraint; but making its way through all the membranes which envelope the

the testicle, it either produces a large, foul stinking, phagedenic ulcer with hard edges; or it thrusts forth a painful gleeting fungus, subject to frequent hæmorrhage.

Sometimes (as I have already observed) an accumulation of water is made in the tunica vaginalis, producing that mixed appearance, called the hydro-farcocoele.

Sometimes there is no fluid at all in the cavity of the tunica vaginalis; but the body of the testicle itself is formed into cells, containing either a turbid kind of water, a bloody sanies, or a purulent, fœtid matter.

Sometimes the disorder seems to be merely local, that is, confined to the testicle, not proceeding from a tainted habit, nor accompanied with diseased viscera; the patient having all the general appearances, and circumstances of health, and deriving his local mischief from an external injury. At other times, a pallid, leaden countenance, indigestion, frequent nausea, cholic pains, sudden purgings, &c. sufficiently indicate a vitiated habit, and diseased viscera; which diseased viscera may also sometimes be discovered and felt.

The progress also which it makes from the testis upward, toward the process, is very uncertain; the disease occupying the testicle only, without affecting the spermatic process, in some subjects, for a great length of time; while, in others, it totally spoils the testicle very

ry soon; and almost as soon seizes on the spermatic chord. *

These, and some other circumstances to be mentioned hereafter, are materially necessary to be observed; as they characterise the disease, point out its particular nature and disposition, and serve as marks whereon to found our judgment and prognostic of the most probable event, as well as the most proper method of treatment. Various have been the causes, to which theoretic and whimsical people have assigned this disease; but as a recital of conjectures can convey no instruction, or useful information, I shall pass them over; and only take notice, that among the great number which have been mentioned, there are two, which, though equally groundless with the rest, have yet obtained a degree of credit, that may mislead: these two are the *hernia humoralis*, and the *hydrocele* of the vaginal tunic.

The *hernia humoralis* is a defluxion of the inflammatory kind, proceeding most frequently from an irritation in that part of the urethra, where the *vasa deferentia* or *vesiculæ feminales* terminate. It is attended with pain and

* This is the common language, and therefore I use it; but I would not be understood to mean, that the progress of the disease is always and invariably upward, from the testis into the process. I have seen the spermatic process truly cancerous, when the testicle has been free from disease; and am well satisfied from experience, that a diseased state of the vessels within the abdomen, or of the parts in connection with those vessels, may produce a morbid state of the process, proceeding downwards from thence: but the other is by much the most frequent.

and heat, and most frequently fever: during the first, or inflamed state of the disease, the whole compages of the testicle is enlarged; but when by rest, evacuation, and proper applications, that inflammation is calmed, there seldom or never remains, either fulness, hardness, or any other mark of disease in the glandular part of the testis. The epididymis indeed seldom escapes so well; that often continues enlarged, and indurated, for a considerable space of time, but without producing either pain or inconvenience; and without occasioning any alteration in the figure or structure of what is called the body of the testicle; whereas the true sarcocele, or hernia carnosâ, most commonly * begins by an indolent induration of that part of the testis, and affects the epididymis secondarily; or, after it has already spoiled the vascular part of the gland.

I would not be understood to mean, that a sarcocele never follows a hernia humoralis; there is no reason in nature why it should not: a hernia humoralis does not, nor can prevent the testicle, in any future time, from becoming schirrhous: I only say, that it does not, at any time, necessarily cause or produce it. So also with regard to the epididymis, I do not mean to say, that it never is the primary and original seat of a schirrhus; I know that it is, and shall produce some instances of it: neither do I intend to say, that a schirrhus never attacks

* I say most commonly, because it is neither necessarily, nor always.

attacks an epididymis which has been previously hardened by a hernia humoralis; there can be no reason why it should not: I only mean to signify, that it is my opinion, that the induration caused by a venereal hernia humoralis does not, at any time, necessarily produce a schirrhus. A schirrhus, indeed, may fall on that part, after it has been so diseased; but it would as certainly have attacked it, if there had been no preceding affection of it.

There is also a venereal affection of the testicle, independant of a gonorrhœa, or of any disease of the urethra.

This is seldom an early symptom; and I do not remember ever to have seen an instance in which it was not either immediately preceded, or accompanied, by some other appearance, plainly venereal. It has neither the inequality, nor darting pains of the schirrhus, and always gives way to a mercurial process, properly conducted.

A quantity of water is frequently collected in the vaginal coat of a truly schirrhous testis. This has given rise to the supposition, that the testicle often becomes diseased, from its being surrounded by, or swimming in the same fluid: a supposition entirely groundless.

That schirrhous, and cancerous testes very frequently are found to have a quantity of fluid accumulated in the tunica vaginalis of them, is beyond all doubt; but that such testicles become diseased, in consequence of being surrounded by such fluid, or, in other words, that a simple hydrocele

drocele may produce a schirrhous testicle, is by no means true.

The simple hydrocele is (as I have already at large observed) a collection of water in the tunica vaginalis: this fluid, in a natural and healthy state of the parts is small in quantity, and, by being constantly absorbed, does not distend the cavity of the tunic, but only serves to keep that membrane from contracting any unnatural cohesion with the tunica albuginea. The regular absorption of this fluid being by some means prevented, the quantity soon becomes considerable, and distending its containing bag, constitutes the disease called a hydrocele; but makes no morbid alteration in the structure of the testicle. *

When the testicle becomes enlarged in size, hardened in texture, craggy and unequal in its surface, painful upon or after having been handled, attended with irregular pains shooting up the groin toward the back, and this without any previous inflammation, disease, or injury from external violence, it is said to be affected with a schirrhous. This, as I have already remarked, is of different kinds and degrees, and appears under different forms; but although the appearances, which the disease makes, are various, according to the alteration produced by it in the testicle, yet, every such morbid alteration may obstruct, or prevent the regular absorption of the fluid deposited

* That is, no such alteration as renders it painful, or incapable of executing its office: and, consequently, no such alteration as can ever require extirpation, or any other surgical operation on the testicle itself.

deposited in the vaginal tunic, and occasion a species of hydrocele; that is, a tumor from water.

This is that kind of disease, which, by Fabricius ab Aquapendente, is called hydro-sarcocele; but which is so very unlike to a simple hydrocele, that whoever mistakes the one for the other, will commit an error, which may prove very mischievous to his patient, and very detrimental to himself.

In the true, simple hydrocele, the testis, tho' somewhat loosened in its texture, and a little enlarged, yet preserves very nearly its natural form; the collection is made without pain or uneasiness, and very soon becomes sufficient to hide, or conceal, the testicle; nor is the examination of such tumor attended with any pain: but the increased size, and hardened state of the schirrhous testis, renders it discoverable, through a much larger quantity of fluid than will totally conceal the former. When felt, it will be found to be hard, and generally somewhat unequal, and not unfrequently attended with irregular shooting pains, especially after having been examined.

In the simple hydrocele, the fluid distends the tunica vaginalis so equally, that, although it does not surround the testicle (nor indeed can) yet it seems so to do: whereas in the hydro-sarcocele, though the anterior part of the tumor may, in some measure, bear the appearance of a simple hydrocele; yet, an examination of its posterior part will always discover the true nature of the
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case : * to which may be added, that under the same apparent magnitude, the latter will always be found to be considerably heavier than the former.

In short the name of this species of disease (hydro-sarcocoele) is, undoubtedly, a very proper one, and capable of conveying a very just idea of its true nature, viz. an accumulation or collection of water in the vaginal coat of a schirrhous or diseased testicle ; but the majority of writers have, by supposing the water to be the cause, instead of the consequence of the diseased state of the testis, committed a very material blunder, and endeavoured to establish and authorize a very prejudicial and destructive method of practice. For, by conceiving that the noxious quality of the fluid produces a fungous, or fleshy excrescence on the surface of the testicle, they have supposed that after having discharged the said fluid from its containing bag, they could, either by establishing a suppuration, or by using escharotic medicines, waste or destroy the said excrescence,

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and

* This has been very judiciously remarked by Mr. Le Dran. Schenkus gives an account of a beginning sarcocoele, which was mistaken for an hydrocele ; upon which a radical cure was performed by castration. Upon dividing the body of the testis, a quantity of thick fluid was discharged ; a thing by no means uncommon, but which was here mistaken for semen. The patient died, not long after the wound was healed ; and the kidney on that side, and the parts about it, made a very morbid appearance. This appearance was by Schenkus supposed to be owing to the hasty cure of the hydrocele ; but was indeed the effect of the same virus which had first spoiled the testicle. Neither was the fluid in the body of it semen, but sanies or matter ; a circumstance most frequently met with in schirrhous testes.

and obtain a radical cure of the whole disease. Now the schirrhosity of the testicle being the original disease, and the extravasation a mere accident, such treatment can never do any material good, and may often be the cause of very essential evil.

Fabritius ab Aquapendente has given a particular description of this method, which he recommends, from having practised it with success: his words are “*Modus singularis est quando hernia aquosa cum carnosa mista est; tunc enim primum incide, et fac foramen in parte scroti quæ not fit declivis, neque in fundo scroti, sed circa medium; nec fac admodum latum: et extracta aqua, turundam impone quam longissimam, medicamento, pus moventi infectam, ut resina terebinthinæ, cum thure, ovi vitello, et butyro; emplastrum emolliens, et pus movens applica, ut diachylon cum gummis, et axungia porci: genitum autem pus, non evacuetur per foramen, sed data opera intus servetur, ut contactu suo, carnem sensim putrefaciat. Neque innovanda medicamenta, nisi tota caro fuerit in pus conversa; id quod longo fit tempore.*” *

Now, to pass over the absurdity of the doctrine of removing or dissolving a fungous excrescence,

* “*Si carnosa, et aquosa sit hernia, ego talem adhibeo curam; seco cutem, et incisionem facio exiguum, et in loco potius altiore, quam in fundo: inde turunda imposita cum digestivo et pus movente medicamento diutius procedo, neque unquam pus extraho, sed perpetuo bonam partem intus relinquo; quod sensim carnem corrodit, et ita sanat.*”

excrecence, by means of the putrefying quality of matter; as well as the great disturbance, which must be the consequence of confining it within the tunica vaginalis; it is very clear from these, and from every other circumstance attending the disease in question, that the cases, which Fabritius had successfully made his experiment upon, must have been mere simple hydroceles, attended with a small degree of enlargement; but without any diseased state of the testicle.

This is one method of procuring a radical cure of the said disease: a method in use, before Fabritius practised it; and still, in some measure employed: a method, which, in some instances, has always been successful; and which may, in general, be tried on any simple hydrocele, in a young and healthy subject. The cure (when it effects one) is not brought about by the destruction of an excrecence from the testicle, or the dissolution of its supposed induration; but merely by exciting such an inflammation, as shall occasion an adhesion of the tunica vaginalis to the tunica albuginea; by which means, the cavity of the former is obliterated; the testicle remaining as to size and consistence, just as it was before such operation was performed.* But this, though

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practicable,

* Another method of treating this disease, in use before Fabricius ab Aquapendente (as may be seen in Guido and others) and much preferable, if used in proper cases, is the method by seton.

This, as I have already observed, I have several times practised with success, in those who would not submit to incision, or in whom it was by no means proper.

practicable, and sometimes successful in the hydrocele, is not to be thought of in the diseased or schirrhous testicle. The operation, as described by Aquapendente, consists of two points; first to let out the water, and then to cause a plentiful suppuration. When the testicle is really and primarily diseased, and the extravasation is a consequence of such disease, the discharge of the water from the cavity of the tunica vaginalis, whether by puncture, or by incision, can contribute nothing material toward a cure of the principal complaint, and is therefore useless; but it may, in many cases, do harm, by creating a disturbance in parts, whose state requires the most perfect quietude; and is therefore wrong. When the disease is a mere, simple hydrocele, the palliative cure, as it is called, by puncture, is right and

Fabricius ab Aquapendente had a different, and that an erroneous, idea of this disease: he conceived, that there was a fungous kind of excrescence on the testicle, and that this excrescence required erosion and destruction; this he aimed at accomplishing, by means of the matter collected within; and therefore his principal aim was to confine and increase it, by making his puncture, for the introduction of his tent, in the upper part of the tumor; and by imbuing it, from time to time, *medicamentis pus moventibus*.

Had he been right in his idea, his practice would have been just: but his conception of the disease was erroneous, and his practice absurd. The rational intention should be, to excite such a degree of inflammation, as may produce an union between the tunica vaginalis and the albuginea: the formation of matter is a mere accidental consequence of this inflammation; and the means used to procure the end (provided it be procured) cannot be too gentle. The matter is of no real use, and therefore it is so far from being necessary to confine it, that if the conjunction of the coats can be obtained, without the formation of any, it is so much the better.

and necessary; it renders the life of the patient easy; rids him, every now and then, of a very troublesome burden; is perfectly safe; may be performed, and repeated occasionally, at any time of the patient's life, or in almost any state of the disease: but the introduction of tents or setons, or the endeavour by any means to excite inflammation, or to establish suppuration within the tunica vaginalis, requires (even in the simple hydrocele, where the testicle is unaffected) some little consideration, and ought not to be hastily, or unadvisedly put in practice.

In some ages, habits, &c. the symptoms will rise very high, and occasion both trouble and hazard: and if this be the case, when the testis is not at all diseased, and when there is no malignity, either in the local complaint, or in the habit of the patient; what have we not to fear where there is both? where the parts are already spoiled by disease, and where irritation and inflammation may (and do) excite the most fatiguing symptoms, and the most unreful consequences?

Beside the hydro-sarcocele, or limpid extravasation of fluid, in the cavity of the vaginal coat, (and which must therefore always be external to the testicle) schirrhous and cancerous testes are liable to collections of fluid, within the substance of them, under the tunica albuginea*. These are sometimes large, and in
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* Job a Meekren has made a very just and judicious remark on this subject. Fabricius ab Aquapendente had reckoned a collection

one cavity ; sometimes small, and in several distinct ones. They are also very different in nature, in different cases ; sometimes serous, sometimes sanious ; sometimes purulent, sometimes bloody. These are very apt to impose on the inadvertent and injudicious ; (especially if they be attended with some degree of inflammation in the skin ;) and to induce an opinion of an abscess, or imposthumation, which may be relieved, or cured, by an opening ; but caveat operator. These collections will be found to bear a much smaller proportion to the general size of the tumor, than they who are not conversant with them are inclined to apprehend ; the subsidence after the opening has been made, will also be much smaller than was expected ; and instead of relief and ease, all the symptoms of pain, swelling, inflammation, &c. will be increased and aggravated : and if the opening be considerable, it not infrequently happens, that an ill-natured fungus is thrust forth ; which, by bleeding, gleet, and being horridly painful, disappoints the surgeon, and renders the state of the

lection of fluid within the tunica albuginea testis, among the kinds of hydrocele. This Meekren does not allow : but, having described the true hydrocele of the vaginal coat, speaks of this collection within the albuginea, as it really is ; that is, as a consequence of the diseased state of the gland. His words are : “ Hieronymus Fabritius ab Aquapendente, Part. I. de Operat. Chirurg. cap. 75. aquam in testibus congregari docet eam quæ ex imo ventre eo defluit : at error est (meo judicio) magni anatomici. Spatio enim eo, quod est inter testiculum et tunicam, imo in scroto ipso, aqua sæpius colligitur : *nunquam in testibus ipsis, nisi putrescant.*”

the patient much more deplorable than it was before: neither is this sensation, which is thought like the fluctuation of a fluid within the testicle, to be at all times depended upon as implying that there is any fluid at all there. The touch, in this case, is subject to great deception; and I have seen a loosened texture of the whole vascular structure, or body of the testicle produce a sensation, so like to the fluctuation of a fluid lying deep, as has imposed on persons of good judgment, and great caution.

Many of the most esteemed writers on this part of surgery, either not being practitioners, or being afraid to differ from those who have written before them, have lazily and servilely copied each other, and have thereby fallen into an obscure jargon concerning this disease, which, neither themselves, nor their readers, have understood. They have talked of the schirrhous testicle, the *caro adnata ad testem*, and the *caro adnata ad spermatica vasa*, as so many different diseases, requiring different methods of treatment.

The melancholia, the atra bilis, and a certain inexplicable adust state of humors, are said to be the causes of these different appearances; and the fleshy substance arising from, or adhering to, the spermatic vessels, is said to be more benign, than either the fungus arising from the testicle, or the true schirrhous. For the first, they have described an operation, which is coarse, cruel, painful, and (notwithstanding all that they have said about it) unsuccessful;
all

all which they must have known, if they had *practised* it. I, therefore, am much inclined to believe, that this is one of the many parts of ancient surgery, which having been devised by some one bold, hardy operator, and by him described as practicable, has been related by many of his successors, as practised. The second, the caro adnata ad testem, they allow to be attended with more difficulty, as well as hazard, and seldom to be attempted with success*.

They,

* “ Ramex hæc inter excreſcentias annumerari poteſt, cum fit additamentum ex toto præternaturale ; nec illi inſunt ſigna apoſtematis, ſed tantum ut caro quæ circa ſcrotum aut epidydimem generari ſolet.”

ANDREAS A CRUCE.

“ Curatio ejus eſt, ut incidatur cutis teſticularum, et exco-
“ tur uſque ad ſuperiora ; deinde extrahe didymum et teſticu-
“ lum, et libera eos ab omni parte ex illa carnoſitate.”

BRUNUS.

“ Fit etiam hernia quandoque ex carnoſitate quãdam præter
“ naturam naſcente juxta teſticulum ; et tunc pellicula incifa un-
“ dique debet exco-riari ; et diſcooperta carnoſitate illa a co-
“ rio exteriori uſque, ſuperius *cauterio* abſcindatur.”

ROLANDUS.

“ Cura ejus non poteſt fieri niſi cum manu pellem exteriorẽ
“ ſcindendo, et carnem a teſticularibus ſcarnando, et incarnatum au-
“ ferendo.”

LANFRANC.

“ Scinde pellem teſticuli cum raſorio uſque ad teſticulum, et tunc
“ carnoſitatem, quam invenis, removeas et excarnes totaliter a
“ teſticulo.”

GUL. e SALICETO.

“ Notandum eſt in hac operatione num caro concreverit
“ circa tunicas ; an circa ipſos teſtes ; numque firmiter an mi-
“ nus firme adhereat partis ſubſtantiæ. Incidendum eſt totum
“ ſcrotum uſque ad carnem concretam, quæ ſi quidem valenter
“ haud ſit affixa, vel ſummis digitis, vel manubrioli ſcalpente,
“ a teſte vel tunicis, ſenſim ſit auferenda.”

FAB. AB. AQUAPEND.

“ Caro item ſæpiſſime teſticularibus, ut eorum tunicis adnaſcitur,
“ ſeroſus enim humor iſte nonnunquam acris factus venas capil-
“ lares, membranaſque leviter erodit. Hinc pars illa ſanguinis quæ
“ paulatim exudat : quæque optima et laudabilis eſt, beneficio ca-
“ loris

They, who are under a necessity of forming their opinions principally from books, and who have not frequent opportunities of knowing from experience how very little they are (in

“loris innati, in carneam substantiam concrefcit, &c. reliquum
“vero sanguinis quod ferofum eft, paulatim membranas totum-
“que fcrotum adeo extendit, ut caro ifta quæ testiculo adherit
“digitis palpari non poffit.” FABRITIUS HILDANUS.

“Secundum eft fcrotum, et detegenda caro, et a teſte dera-
“denda vel a vaſis, &c.” GAB. FALLOPIUS.

The falſe reaſoning, the want of anatomical knowledge, the cruelty and inutility, of the propoſed operations, and the terrible conſequences which muſt follow from their being put in practice, are too glaring to need any comment; and ſuch as muſt incline every reaſonable man to hope, that theſe authors (and a great multitude of others, who might be named) did in this part of ſurgery, as they have done in many others; that is, copy each other in the precepts relative to the cauſe and treatment of this diſeaſe, but did not put their directions often into practice. The imperfect ſtate of anatomy, in the time of the above-cited writers, may be admitted as an excuſe for them; but even very late ones have fallen into the ſame error.

“In the fungous excrcſcence upon the teſtis, when the ſame is
“not over-grown, you are to make way thereto; which is
“then to be conſumed by eſcharotics, or by the actual cautery.”

TURNER.

“Si quid vero carnis enatum a teſticulo deprehenditur, quod
“graviter hominem affigat, nec diſcuti tamen per adhibita me-
“dicamenta convenientia queat, tum ſi teſticularis integer adhuc eſt,
“atque illibatus, feliciter ut plurimum ſanari noxa poterit, ipſe-
“que teſticulus ſervari; dummodo quicquid præter naturam ſu-
“per increvit, *deoperto ſcroti*, quam exactiſſime ab eo *ſolvatur*, at-
“que reſcindatur.”

“Quod ſi autem ipſum teſticulum invaſerit; vel excindi etiam
“propter nimios cruciatus, vel ſimiles alias cauſas, indecore promi-
“nentes partes nequeant, neceſſarium utique erit, vel, univerſum
“teſticulum, *vel quandam ſaltem ejus partem*, modo jam propoſito
“excindere.”

HEISTER.

To ſet aſide the ſtrange diſtinction between the “caro enata a
“teſticulo,” and that “quæ ipſum teſticulum invaſerit,” (a diſ-
tinction taken from books only) I believe I may venture to ſay,
that the Profeſſor never found, that the operations which he de-
ſcribes and adviſes, were attended with ſucceſs; and, I hope that
he has not often ſeen them performed.

(in many cases) to be depended upon, may be inclined to think, that all these distinctions really exist; and that these operations by fire and sword, by knives and cauteries, so exactly described, must be sometimes necessary; but having never seen the particular cases requiring such treatment, have a very imperfect idea, either of them, or of the operations; and are, to the last degree, alarmed and intimidated, when any thing, which they think is like to it, occurs to them in practice. To such, it may not be amiss, to explain this matter, in as few words as I can; begging pardon of the more intelligent reader for the digression.

In the short anatomical account which I have given of these parts, I have taken no notice, that the spermatic vessels terminate in the testicle: and that, after the semen has been secreted from the blood, it passes from that gland into a body which seems superadded to, although it be really continuous with it. This body is therefore called the epididymis, and is so placed, with regard to the testis, that a heedless or uninformed observer may suppose, that the spermatic vessels terminate in it; especially, if it be enlarged by disease. It takes its rise from the testicle, by a number of vessels, called, from their office, *vasa efferentia*: these soon become one tube, which being convoluted and contorted in a most wonderful manner, forms the greater part of the said body; and at last, ceasing to be so convoluted, it ends in one firm canal, called the *vas deferens*; by which, the secreted semen is conveyed from the testicle to the *vesiculæ seminales*.

Whoever

Whoever will attentively consider the epididymis in its natural position, with regard to the testicle and the spermatic vessels, will see, that if it be enlarged beyond its proper size, it will extend itself upward, in such a manner as to seem to be closely connected with them, and to bear the resemblance of a diseased body, springing from them.

This is the case called the *caro adnata ad vasa spermatica*; and is really and truly nothing more, than an enlargement of the epididymis; a circumstance which occurs not infrequently, but does not imply any malignity, either in the part or in the patient's habit; and can never require such a horrid operation as our fore-fathers have directed us to perform upon it; nor, indeed any at all.

The epididymis is frequently enlarged, in venereal cases, either separately, as in the remains of a hernia humoralis, or together with the testicle, in that affection of it, which I have called the venereal sarcocele; and sometimes from mere relaxation of its natural texture, without any disease at all. But in none of these can it require or even admit any manual operation of any kind. Indeed whoever will consider the epididymis, as it really is, as the medium by and thro' which the semen is conveyed from the testicle to the vas deferens, must immediately be sensible of the glaring absurdity of removing any part of it.

The schirrhus and cancer do not very often begin in this part; they most frequently make the first attack on the body of the testis: and, though

though the epididymis is often cancerous, yet it most frequently becomes so secondarily, or after the testicle is spoiled; so that the removal of it, if practicable, could serve no good purpose: it would not remove the disease; for that has, beforehand, most commonly taken possession of the testicle; and the cutting off any part of a schirrhous or cancerous tumor of any kind, is what no man, who has the least knowledge of what he is about, will ever think of.

In short, these two cases, which, by the inattention and misrepresentation of our ancestors, have created such perplexity in the minds of their readers, are either a simple enlargement of the epididymis, without any morbid alteration in its structure; or a diseased (that is a schirrhous) state of the same part; or else, a schirrhous or cancerous testicle, with inequality of surface. The first of these requires no manual operation of any kind; and the two last will admit of none: the first is no disease at all; and the two last are such diseases, that every attempt made on them, by knife or caustic, (unless for total extirpation) must render them worse, and more intractable.

The manner of treating a farcocoele, or hernia carnosa, depends entirely on the particular nature and state of each individual case. In some it will admit of palliation only; in others, the disease may be eradicated, by the extirpation of the part: so that, under the article of method of cure, we have only to consider, and point out, as clearly as the nature of the disease will permit, what states and circumstances, both of it, and of the patient

patient labouring under it, forbid the operation, and what render it advisable.

On this head, great variety of opinions will be found among writers; so great, that a man, who is under a necessity of forming his judgment from them, will find himself under some difficulty how to act; and so great, that I cannot help thinking it to be clear, that the majority have not written from practice, but from mere conjecture, or from the works of those who have gone before them.

Some have given it, as their opinion, that while the testicle is perfectly indolent (let the alteration in its structure, form or consistence, be what it may) it is better to suffer it to remain, than to remove it. In support of this opinion, they say, that altho' the disease has plainly taken possession of the part, yet, while it causes no pain, the constitution receives no damage from it; nor is the health of the patient impaired by it: whereas, by removing the testicle, the same virus may seize on some part of more consequence to life. This method of reasoning takes for granted two things, which do not appear to be strictly or constantly true; viz. that this disease is never perfectly local; and that a schirrhous testicle, though free from pain, will not in time produce any evil to the general habit of the patient. Others advise us to stay, until the tumor becomes painful, and manifestly increases in size, or requires a sensible inequality of surface; that is (in other words) until it begins to alter from a quiet state, to a malignant one: which, advice as well as the preceding, supposes, that the hazard of the mere operation of
castration

castration is too great to render it an advisable thing, until the patient is pressed by bad symptoms; and that a schirrhous testicle, which has been quiet, and free from pain for some time, may be as successfully extirpated, after it has become painful, and has acquired a malignant and threatening state, as at any time before such alteration. The latter of these will hardly be admitted (I believe) by those, who form their opinions from experience; and with regard to the former, I can, with great truth, affirm, that I never saw the mere operation of castration, when performed in time, and on a proper subject, prove fatal.

Many people have I known, who have lived several years, their whole lives, perfectly free from disease after the removal of quiet, indolent schirrhous testicles; and several have I known, who having deferred the operation, until they were urged by pain, increase of size, and inequality of the tumor, have, from the sore becoming cancerous, not been able to obtain a cure. That I have seen the same thing happen, after the removal of a testicle, circumstanced in the best manner, is beyond all doubt; but not near so frequently, as in those cases, in which the operation has been deferred until the symptoms became alarming, and the disease had changed its appearance from a benign quiet one, to one that was malign and painful. Indeed, were we capable of knowing, with certainty, which those schirrhii were, that would remain quiet and inoffensive through life, or for a great length of time, and which would not; we should then be enabled

enabled to advise or dissuade the operation, upon much better (that is much surer) grounds, than at present we are enabled to do. We have no such degree of knowledge; all our judgment is formed upon the mere recollection of what has happened to others in nearly similar circumstances; and experience, though the best general guide, is, in these cases, more fallacious than in many others.

A few people there certainly have been, who have been so fortunate to carry a schirrhous testicle through many years, with little or no pain or trouble: but the number of those, in whom time, (and that frequently a short space) change of constitution, external accidental injury, &c. do not make such an alteration in this disease, as to render the operation less likely to be successful, than it would have been at first, and under more favourable circumstances, is so small, that I think early castration (that is, as soon as the disease is fairly formed and characterised) may be recommended and practised by every honest and judicious surgeon. *

Indeed,

* Schirrhous and cancerous tumors are found in many parts of the body, as well as in the testicle; and in all others, as well as in that, bear different characters: that is, show a greater or less disposition to malignity; remaining sometimes of small size and easy for many years, at others, increasing fast, and so producing great pain, and all its bad consequences.

Of all the kinds of this disease, those which follow upon some external violence (such as blow, bruise, &c.) are thought, and said to be the least; therefore, great regard has been paid always to this distinction by writers, and great hopes conceived from this circumstance by patients. I wish I could say, that such hopes were
always

Indeed, the circumstances of frequent pain, and a manifest tendency to an increase of size, are by some people looked on, as such marks of a malignant disposition, that they have been, by them, reckoned as dissuatives from the operation.

But

always as well founded as they are thought to be : I mean that experience most frequently verified them.

When a schirrhous seizes a part that has previously sustained an injury from without, such probable cause is, undoubtedly, a favourable circumstance : but it does not, by any means, necessarily follow from thence, that the constitution of such person is free from taint. It is a presumption, but not a proof : and this presumption becomes more reasonable, if the diseased state of the part follows such accidental injury soon, than if it appears at a great distance of time.

No man will pretend to say, that such mischief has not been done by outward violence, that cancerous disorders have not followed, in the parts so injured, in persons, who, before such accident, never had any appearance of such disorder ; and who possibly might have lived many years, nay, their whole life, without its appearing in such form and manner : but that, previous to such accident, there was no cancerous disposition, or malignity in the habit, is an inference which cannot be admitted.

What disorders of the joints do we see, produced by very slight injuries done to them ? disorders which are clearly and plainly scrophulous, and which would not have appeared at that time, or in that part, had it not been for such accident : but surely no man will from thence conclude, that such people have no scrophulous taint in their blood, or glands, previous to such strain or bruise. How many internal parts are there for this disease, as well as some others, to make its attack upon ; but which, by being out of sight, and not deemed objects of surgery, are not known ; and pass either for other diseases, or for the symptoms of other diseases ? what tumors of the lumbar glands and mesentery ; what obstructions in all parts of the contents, both of the abdomen and thorax, do we not find, upon examining the dead, whose disorders were very little known or understood while they were living ; but whose prevailing indisposition, whose natural dyscrasia, would, most probably, have shewn itself in some more visible part, if such part had accidentally suffered from external violence ?

All

But these gentlemen carry their fears and apprehensions much too far the other way. Pain and a quick increase of size are certainly no favourable symptoms; they shew a disposition to mischief, but they are not such positive proofs of a cancerous habit, as to render all hope

All that we from experience know, and therefore all that we ought honestly to say on this occasion, is, that it has very often happened, that where that kind of disorder, which produces schirrhous or cancerous tumors, has been brought into action by external injury, (whether it be in the breast, testicle, or any other part, it matters not;) or when such kind of disease has seized such part, no preceding violence having been offered to it, and has therein occasioned a fixed but indolent kind of swelling, which has either remained a long time of one size and state; or, if it has altered, has altered very slowly, and given the patient but little uneasiness; if such tumor has been so situated and circumstanced, that it could safely be extirpated, or removed; that such removal, or extirpation, has often cured the present evil; and that the patient has remained free from any thing of like sort, during his or her life.

This is true, and therefore is, and ever will be, a sufficient reason, for pressing such operation, when all other circumstances are favourable: that the patient may keep well after it, is by no means improbable; that the schirrhous would remain, through life, indolent and inoffensive, is very improbable. But whoever boldly asserts, that such extirpation will always and certainly cure the disease, is very inexperienced, or is wilfully guilty of a deception (the two distinguishing marks of a quack, who always promises, what he either does not know, or does not believe.)

When a schirrhous or cancer is favourably circumstanced, and so situated as that it may be extirpated, such extirpation is indeed the only remedy; and that method by which such extirpation can be most certainly and expeditiously executed, is, beyond all doubt, the best.

The two in use, are the knife and the caustic. The former in the hand of a surgeon who is an anatomist, has every advantage which can be desired or supposed: it gives less pain, is more secure, and more expeditious; but it impresses on the patient the apprehension of an operation, and the fear of an hæmorrhage. The use of caustic is infinitely more painful, not only in immediate sensation,
but

hope of a cure, from the removal of the diseased part, vain : there are many instances to the contrary : and though no honest or judicious man will venture to promise success, even in the most favourable of these cases, yet it is well known, that they which have had very unpromising

but in duration ; it often requires repetition ; it is less manageable, less secure ; and the great length of time, which the separation of the mortified parts sometimes takes up, renders it very tedious. But it is attended with two circumstances, which have greatly contributed to the support of cancer quackery : one is, that it spares the patient the horror of an operation ; which, though infinitely less painful than the effect of the caustic, is not believed to be so : the other is, that the ragged appearance, which the bottom and sides of the parts make after having been removed by such application, is so unlike to the smoothness of that which has been removed by incision, that ignorant people are easily induced to believe what the designing always tell them, viz. that the medicine has taken their disease out by the roots ; and that the ragged parts which they see, are such roots.

It is amazing what weight this single circumstance has with many, and even with some sensible people ; few of who are persuaded to believe what is as true as any proposition in Euclid, viz. that a caustic of equal strength, applied on any glandular part of any person, will always produce exactly the same effect, and appearance, as, in this case, passes with them for the roots or branches of the disease.

When nurses and quacks talk of the fibrous roots of a cancer, and of cancerous fermentations, they are excusable ; the one from their ignorance, the other from the nature of their trade ; but when they who pretend to some kind of medical knowledge use this kind of language, it is shameful.

If either fears of the patient, or the particular circumstances of the part to be removed, render the use of caustic preferable, or necessary, every practitioner is well acquainted with those which are perfectly efficacious ; but every practitioner also knows, that good reasons for preferring the use of them to the knife very seldom occur : it is in this as in the attempts toward a radical cure for ruptures, and some other parts of surgery, we are censured where we ought to be applauded, and blamed for those very things, from whence we ought to derive praise. We have laid aside certain methods and processes, because we found them (upon experience)

unpromising appearances, not only from the state of the testicle, but from that of the spermatic chord, have succeeded often enough, to make the chance of a cure, by the operation, by no means a desperate one. The state of a man left to his fate in these circumstances, that is, to the fury and progress of the disease, is so truly miserable, that nothing should be left unattempted, which carries with it any probability of being serviceable : and a practitioner is vindicable, in pressing what he has known to be successful ; though, at the same time, he ought to make a guarded kind of prognostic.

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Upon

to be painful, hazardous, and ineffectual : and these very methods destructive and fallible as they are, have given credit and honour to those who have had ignorance and inhumanity enough to revive them.

We are not yet so happy, as to be possessed of any medicine which will cure a cancerous habit : when the constitution is thoroughly infected, neither our knives or caustics will avail ; they can only remove the local mischief, but can have no effect on the general one in the constitution. Whoever says otherwise, says what is not true ; and whoever believes otherwise is imposed upon. When the habit is concerned, as it too frequently is, it must be an internal remedy that proves a specific, whenever we are so happy as to be blessed with the discovery. The supposition, that an escharotic can, by destroying a particular part, eradicate the disease from the habit, is (one would be inclined to suppose) too gross an absurdity for the most credulous believer to swallow ; and yet, it is believed, and trusted to every day. Indeed it sometimes happens in the treatment of these cases, that either the arrival of puberty, a favourable turn in a constitution, or the renewal of long obstructed evacuations (especially the uterine ones) shall restore the patient to a better state of health, and prevent either the farther progress of the disorder, or any new appearance of it in any other place. In this case, if the extirpation was made by an external application, and not by an instrument, such application is thought to have wrought the cure, and has all the credit of doing what it really had no share in then, what it never can do, nor have the appearance of doing again, but in the like accidental circumstances.

Upon the whole, I think it may justly be said, that the man, who has the misfortune to be afflicted with a truly schirrhous testicle, has very little chance (notwithstanding all that has been said and written about specifics) to get rid of it by any means, but by extirpation: and all the time the operation is deferred, he carries about him a part not only useless and burthensome, but which is every day liable, from many circumstances (both external and internal) to become worse, and more unfit for such operation.

While the testicle is small, and free from acute or frequent pain, the vessels from which it is dependent are most frequently soft, and free from disease; whereas, when the testis has been suffered to attain a considerable size, the case is frequently otherwise: the spermatic vessels are often large and varicose; and the cellular membrane investing them sometimes becomes thick, and contracts such connections and adhesions, which though they may not amount to an absolute prohibition of the operation, do yet render it tedious, troublesome, and more hazardous than it would be in other circumstances. Every addition to the original complaint in the body of the gland is against the patient; and if any of these are the consequence of not having removed it in time, it will follow, that the sooner it is removed the better. If we wait for what some call indications of the necessity of operating, we shall often stay until it will do no good. Many a one have I seen lose a very probable chance of a cure

cure by delay: but I do not remember ever to have seen a testicle removed, by a man of judgment, which testicle did not, upon examination, fully vindicate the extirpation. If we were possessed of any medicine, either external or internal, which had been known now and then to have dissolved schirrh, it would always be right to recommend the trial of them previous to an operation; and it would always be right to defer operating until such trial had been made. But the truth is, we know no such medicine. The credulous on the one hand, and the designing on the other, have told us many strange stories of cures effected by such applications and remedies; and I do most sincerely wish, that what each of them have said was true: but repeated, faithful experience has proved that it is not; and that they who have placed their confidence in them, or laid out their money on them, have been disappointed and cheated.

Some circumstances there are now and then attending this disease, which are out of our sight and out of our knowledge, and which will render all our pains abortive: such are tubercles, indurations, and other diseased appearances in the cellular membrane enveloping the spermatic vessels within the abdomen; schirrhous viscera, &c. If any of these can be known, they constitute a good reason for not attempting the cure by the operation; but the mere possibility that such may exist, is certainly no reason for abstaining from it: the apparent evil, that is, the diseased testis, is certain;
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the other may or may not be the case: the one if left to itself, is most likely to destroy the patient in a most miserable and tedious manner; and the other, the suspected mischief, may possibly not exist.

But though the timely and proper removal of a schirrhous or cancerous testicle does frequently secure to the patient life, health, and ease, which, in such circumstances, are not attainable by any other means; yet it must be remarked, that the improper and untimely performance of the operation is not only not attended with such happy and salutary event, but generally brings on high symptoms, and quick destruction. It, therefore, behoves every practitioner to be perfectly well acquainted, not only with such circumstances as render castration practicable and advisable, but with those which prohibit such attempt.

These are of two kinds, and relate either to the general habit of the patient, and the disorders and indispositions of some of the viscera, or to the state of the testicle and spermatic chord.

A pale, fallow complexion, in those who used to look otherwise; a wan countenance and loss of appetite and flesh, without any acute disorder; a fever of the hectic kind; and frequent pain in the back and bowels, are, in those, who are afflicted with a schirrhous testicle, such circumstances as would induce a suspicion of some latent mischief, and incline one to suppose, that the same kind of virus, which had apparently spoiled the testis, may also have exerted its malign influence on some of the viscera: in which case, success from the mere removal of the testi-

cle is not to be expected. They, whose constitutions are spoiled by debauchery and intemperance, previous to their being attacked with this disease, who have hard livers, and anasarcaous limbs, are not proper subjects for such an operation. Hard tumors within the abdomen in the regions of the liver, spleen, kidneys, or mesentery, implying a diseased state of the said viscera, are very material objections to the removal of the local evil in the scrotum. In short, whenever there are manifest appearances or symptoms of a truly diseased state of any of the principal viscera, the success of the operation becomes very doubtful; more especially, if such symptoms and appearances, upon being properly treated, resist in such manner, as to make it most probable, that a cancerous virus is the real cause of them. When none of these require our attention, the object of consideration is the testicle and its spermatic vessels. The state of the mere testis can hardly ever be any objection to the operation; the sole consideration is the spermatic chord: if this be in a natural state, and free from disease, the operation not only may, but ought to be performed, let the condition of the testicle be what it may: if the spermatic chord be really diseased, the operation ought not to be attempted. For although on the one hand, a probability of success will vindicate an attempt, even though it should fail; yet, on the other, where there is no such probability, an operation, though performed in the most dextrous manner, will prove only a more ingenious method of tormenting.

This

This therefore (the state of the spermatic chord) is a matter, which may require our most serious consideration; since, on this it is (when the disease appears to be local) that we must found our judgment; and by this must form our resolution, either to leave a man to the truly miserable fate of being slowly, though certainly, destroyed, by a cruelly painful, and frequently very offensive disease; or endeavour to save, and preserve him in health and ease, by means which have so often proved successful, as truly to deserve the appellation of *probable*.

All writers on this subject agree in saying, that if the spermatic process has partaken of the diseased state of the testicle, that is, has become enlarged, and hardened, and such enlargement and induration extends itself quite up to the abdominal muscle, that the operation of castration ought not to be performed, because it not only will prove successful, but will hasten the death of the patient. And this is, in some degree, most certainly true; but not without some limitation. A truly and absolutely diseased state of the spermatic chord, in any part of it, is certainly a very material objection to the operation, as it most commonly proves a bar to the success of it: and a morbid state of the same chord, quite as high as the abdominal muscle, that is, of all that part of it which is external to the cavity of the belly, is a just and full prohibition against such attempt. But on the other hand it must be observed, that every apparently-morbid alteration of the spermatic chord is not really such; and therefore, that every enlargement, induration, fulness, &c. which seems

to alter the spermatic vessels from that state which is called a healthy and natural one, is not to be regarded as a disease; at least not such a disease as is sufficient to prohibit the attempt to obtain a cure by extirpation. The difference between these, it is the duty of every practitioner to become perfectly well acquainted with, as it is from a consideration of these, that he ought to determine, whether he may, with that firmness and assurance which the probable expectation of success will give him, propose and advise castration; or find himself obliged in conscience to dissuade, or refuse, the performance of it.

When the spermatic vessels are not only turgid and full, but firm and hard; when the membrane, which invests and connects them, has lost its natural softness and cellular texture, and has contracted such a state, and such adhesions, as not only greatly to exceed its natural size, but to become unequal, knotty, and painful upon being handled, and this state has possessed all that part of the chord, which is between the opening in the oblique muscle and the testicle, no prudent, judicious, or humane man will attempt the operation; because he will, most certainly, not only do no good to his patient, but will bring on such symptoms, as will most rapidly, as well as painfully destroy him. Of this, there are so many proofs, that the truth of it is incontestible.

In some modern French books, we have indeed miraculous accounts of operations of this kind, performed by dividing the tendon of the oblique muscle, by tracing the diseased spermatic vessels within the cavity of the belly, and there making
the

the ligature and excision : but these are operations which make a figure in books only, and are performed only by visionary writers ; or, if ever they have been practised, serve to shew the rashness and insensibility of the operators, much more than their judgment or humanity. Whoever (notwithstanding these tales) performs the operation, in the circumstances above-mentioned, will prove himself much more hardy than judicious ; and will destroy his patient, without having the satisfaction of thinking that his attempt, though successful, was yet vindicable ; the only circumstance, which can, in such events give comfort to a man, who thinks rightly.

On the other hand, as I have already said, every enlargement of the spermatic chord is not of this kind, nor by any means sufficient to prohibit, or prevent the operation.

These alterations, or enlargements, arise from two causes, viz. a varicose dilatation of the spermatic vein, and a collection, or collections of fluid in the membrane investing and enveloping the said vessels. In the first place, as there is no reason in nature, why a testicle, whose vessels have previously (for some time perhaps) been in a varicose state, should not become schirrhous ; so it is also clear that the schirrhosity seizing such testicle will by no means remove, or even lessen such varicose dilatation of the vessels from which it is dependant ; on the contrary, will most probably, and indeed does most frequently, increase such distention : but such mere varicose enlargement of the vessels, whether it be previous or consequential to the morbid state of the testis, does

does not, nor ought to prevent the removal of it, if otherwise fit and right. It is indeed an objection to the doctrine of Mr. Le Dran, and a few other writers, who make no ligature on the chord, and trust to a slight contusion of it between the finger and thumb for a suppression of the hæmorrhage; but is none to the rest of the operation, as I can from experience testify.

In the next place, the diseased state of a truly schirrhous testicle, its weight, and the alteration that must be made in the due and proper circulation of the blood, through both it and the vessels from which it is dependant, may, and do occur in inducing a varicose dilatation of the spermatic vein, without producing that knotty, morbid alteration and hardness, which forbid our attempts. Between these, a judicious and experienced examiner will generally be able to distinguish.

In the former (the truly diseased state) the chord is not only enlarged, but feels unequally hard and knotty; the parts of which it is composed are undistinguishably blended together; it is either immediately painful to the touch, or becomes so, soon after being examined; the patient complains of frequent pains shooting up, through his groin, into his back; and from the diseased state of the membrane composing the tunica communis, such adhesions, and connexions, are sometimes contracted, as either fix the process in the groin, or render it difficult to get the finger and thumb quite round it.

In the other (the mere varicose distention) the vessels, though considerably enlarged and dilated, are nevertheless smooth, soft, and compressible;
the

the whole process is loose and free, and will easily permit the fingers of an examiner to go all round it, and to distinguish the parts of which it is composed; it is not painful to the touch; nor does the examination of it produce, or occasion, those darting pains, which almost always attend handling a process malignantly indurated.

I do not say, that the distinction between these two states is always, and invariably, to be made; but that it often may, I know from repeated experience; and that the operation may safely be attempted, and successfully be performed, I know from the same experience. The state of a man, left to the mercy of a malignant schirrhous, is so truly deplorable, that we cannot be too attentive, in examining the precise nature of each individual case; and of embracing every opportunity of giving him that relief, which it may at one time be in our power to give, and which, the lucky opportunity missed, it may never be in his power again to receive.

The other circumstance, which I have mentioned as capable of deceiving an operator, and inducing him to believe that the spermatic chord is much more diseased than it really is, and thereby deterring him from the performance of an operation which might prove successful, is the extravasation, or collection of fluid, in the cellular membrane enveloping the spermatic vessels, between the abdominal opening and the testis.

In

In the cellular membrane leading to a diseased testicle, it is no very uncommon thing, to find collections of extravasated fluid. These, as they add considerably to the bulk, and apparent size of the process, make the complaint appear more terrible; and, as I have just said, less likely to admit relief.

When this extravasation is general thro' all the cells of the investing membrane, and the spermatic vessels themselves are hardened, knotty and diseased, the case is without remedy; for although a puncture, or an incision, will undoubtedly give discharge to some, or even the greatest part of the fluid; yet this extravasation is so small, and so insignificant a circumstance of the disease, and the parts in this state are so little capable of bearing irritation, that an attempt of this kind, must be ineffectual, and may prove mischievous.

But, on the other hand, collections of water are sometimes made in the same membrane, from an obstruction to the proper circulation through the numerous lymphatics in the spermatic process, while the vessels themselves are really not diseased, and therefore very capable of permitting the operation. In this case, the fluid is generally in one cyst, or bag, like to an encysted hydrocele, and the spermatic chord, cyst and all, are easily moveable from side to side; contrary to the preceding state, in which the general load in the membrane fixes the whole process, and renders it almost immovable.

A discharge

A discharge of the fluid will, in this case, enable the operator to examine the true state of the process, and, as I have twice or thrice seen, put into his power, to free his patient, from one of the most terrible calamities, which can befall a man.

There is one more circumstance relative to the schirrhous testicle, which appears to me to be worth attending to, as I cannot help thinking that it has misled many, who have not had sufficient opportunity of comparing theory with practice.

It has been confidently asserted, and is generally believed, that a schirrhous testicle never begins in the epididymis of the said testicle. The consequence of this doctrine is, that when a disease, which affects a testicle, by enlarging and hardening it, makes its first attack on the epididymis only, such disease is not allowed to be a schirrhus, nor permitted to be treated as such.

That inflammatory kind of tumor, which, in the virulent gonorrhœa, seizes the testicle, and is called the hernia humoralis, affects the epididymis; and, even under the best care, sometimes leaves it too large, and too hard. This is said, never to end in, or produce a schirrhus: and, I do not recollect, that I have ever known it to do so. The disease, which consists in an induration and enlargement of the whole testicle, in the more confirmed lues, affects the epididymis also, as well as the glandular part of the testicle; and I do not remember to have seen it, either become cancerous, or not yield to mercury, properly administered. But that a true schirrhus, or cancer, sometimes

Sometimes makes its first attack on the epididymis, which it alters and spoils, before it at all affects the testicle, is a truth, of which I have not the least doubt. Among others, I formerly believed the contrary doctrine; and in the first edition of this book, have given it as my opinion: but I am, from experience, so perfectly convinced of the truth of what I have now asserted, that I think myself obliged to declare it. The mistake, I suppose to have been made by the first propagators of this opinion, thus: The hernia humoralis, and the venereal sarcocoele, always enlarge the epididymis, and generally leave it somewhat too hard: both these have, by adventurous and unknowing people, been mistaken for schirrh; but it being found by experience, that these alterations in the epididymis, were either totally removed by medicine, or, if any part remained, it continued harmless through life; an inference was drawn, that, as true schirrh are not often either removed by medicine, or continue harmless, therefore an original affection of the epididymis could never be a true schirrh; a deduction, which the premisses do not, by any means, authorize; and which I am satisfied, is not true.

The operation of castration is performed as follows:

The patient being laid on a table of convenient height, the integuments covering the spermatic vessels in the groin, are to be divided. This incision should be begun, as nearly as can be, opposite to the opening in the abdominal muscle,
and

and should be continued a good way down the scrotum.

The manner of beginning this incision is differently described by writers ; some of them advising that the skin be held up by an assistant ; others that the knife be used perpendicularly, in this as in other parts ; it is indeed a matter of no importance at all, either to patient or surgeon, and therefore may very safely be left to the choice of the latter ; but the length of the division is of consequence to both. A small wound will indeed serve to lay bare the spermatic chord, but it will not permit the operator to do what is necessary afterward, with dexterity, or facility : a small wound gives as much pain in the infliction, as a large one ; and as the scrotum must, first or last, be divided nearly to the bottom, it had better be done at first, on every account. The spermatic chord, thus laid bare, is to be freed from its surrounding membranous connections ; and then the operator, with his finger and thumb separating the blood-vessels from the vas deferens, must pass a needle, armed with a ligature, between them ; and, having tied the former only, must cut through or divide the whole chord, at a quarter or half an inch distance from the said ligature, according as the state of the process and testicle will admit. This done ; he is then (with the same knife, with which he has performed the former part of the operation) to dissect the testicle out from its connection with the scrotum : the loose texture of the dartos, the previous separation of the testicle from the
spermatic

spermatic vessels, and the help of an assistant to hold up the lips of the wound, will enable him to do this with very little pain to the patient, and great facility to himself. *

If any considerable artery bleeds, either in the scrotum or in the dartos, it must be restrained by ligature; and when that is done, the void space in which the testicle was, is to be very *lightly* filled with soft, dry lint; which lint should be suffered to remain, until it be perfectly loosened by the suppuration from every part of the sore: if it be removed sooner it must be done by force; in which case, it will give unnecessary pain, and leave a crude, undigested sore; if it be not removed till quite loose, it will give no pain, and the sore will be found clean, and well digested, and requiring no other dressing afterward than mere dry lint; which, from this time, should be applied in such quantity and manner, as to give nature an opportunity of contracting and healing the wound as fast as she can; in both which she may be considerably assisted by the judicious exhibition of the bark.

I am very sensible, that, in the above direction for the performance of the operation of castration, I have differed from the doctrine of some very eminent modern practitioners; and, particularly from Mr. Le Dran.

V O L. II.

I

No

* This circumstance of cutting off the testicle, before it be dissected out from the scrotum, immediately after the ligature has been made, is of more consequence to the patient's ease, as well as to the facility and expedition of the operation, than they, who have not tried it are aware of.

No man thinks more highly of Mr. Le Dran's abilities, than I do; but in these matters, every one must take the liberty of judging for himself; and, I cannot help thinking, that I have good reason for my opinion.

Mr. Le Dran, having divided the integuments in the groin and scrotum, separates the testicle from the surrounding membrane, with his fingers, and with scissars. This method is rather coarse, is unnecessarily painful, and does, what must for ever be wrong, multiplies the instruments to be used, without any necessity. The knife, in the hands of any man at all accustomed to the use of one, will execute the whole, with more apparent dexterity, with less pain, and much greater expedition. *

I have, without hesitation, directed the spermatic chord to be tied. Mr. Le Dran's advice is different. He advises, that a ligature be passed underneath it; and left there to be tied, or not, as occasion may require.

He then takes the extremity of the latter between his finger and thumb; and, by rubbing,

* “ Je fens le scrotum jusqu' au dessous du testicule malade, et avec mes doigts, je detache le testicule d'avec le tissu cellulaire, qui le tient attaché dans le scrotum. Si quelque portion membraneuse a de la peine a se detacher, je la coupe avec des ciseaux.” Mr. De Garengeot divides the whole scrotum with scissars; and I cannot say, that I have not seen it done in London; but it is a tedious, coarse, cruel, and very unhandy method of doing it. “ Cette premiere incision faite, l'opérateur poussera de force, le doigt indice, ou le grand doigt sous la peau, dans les cellules graisseuses, afin d'entrer dans le scrotum, et il aggrandira son incision en coupant, sur son doigt avec des ciseaux mouffles la peau, qu'il aura separée des graisses, et il ouvrira ainsi tout le scrotum.”

rubbing, pinching, or bruising, produces a degree of contusion, sufficient (as he thinks) to prevent, in general, any hæmorrhage; and, having so done, he cuts off the testicle from the said chord, immediately below the bruised part, leaving (as I said before) the ligature ready to be tied, if necessary.*

This method, of first bruising, and then cutting off the spermatic chord, without making a ligature on it, is also prescribed and practised by some gentlemen of eminence here; and I make not the least doubt, that, both with these gentlemen, and with Mr. Le Dran, it may have been successful; but, as I have seen three people lose a very alarming quantity of blood, and one very nearly his life, under it; and as, in the many times which I have performed this operation, I never saw the least inconvenience arise from the ligature, I cannot approve the omission of it.

Mr. Le Dran himself, not only seems to be apprehensive, of what *may* be the consequence, by his passing a ligature, and leaving it ready to be tied, and by the very good reason which he gives for not cutting off the

I 2

spermatic

“ * Il n’y a que l’artere qui m’intéresse, parce qu’il n’y a qu’elle, qui puisse donner du sang après que j’aurai coupé le cordon.
 “ Je la prends entre deux doigts à l’endroit, où elle passe sur l’os pubis, et avec elle les veines qui l’entourent; puis je passe entre ces vaisseaux et le canal deferent, que l’on distingue sous le doigt;
 “ à sa dureté, une aiguille enfilée de deux brins de fil ciré. J’ôte l’aiguille, et je laisse les fils, pour faire la ligature au cas qu’elle devienne nécessaire. Je prends aussi tout les vaisseaux plus bas que l’os pubis, et je le froisse entre mes doigts, pour y faire une espèce de contusion: puis je coupe le cordon un peu, au dessous de cette endroit froisse.”

M. LE DRAN.

spermatic chord (as most of his countrymen advise) close to the opening in the tendon of the oblique muscle; but also in the same paragraph, acknowledges, that a fatal hæmorrhage has been the consequence of the ligature having slipped off, after it has been made.*

In the case of a perfectly sound and unaltered spermatic chord, in which the vessels are not become varicose, and the operator can make his division of them as low as he pleases, this froissement, this contusion may be sufficient to prevent an hæmorrhage; but in cases, where the spermatic chord is enlarged, Mr. Le Dran himself does not think it safe to trust to it. And that the vessels, from which a schirrhous

* “ On demandera, pourquoi je ne fais pas la ligature du cordon immédiatement au dessous de l’anneau, comme les auteurs le prescrivent. Je reponds, que si la ligature s’échappe, on ne peut plus lier l’artere, qui se retire au dessus de l’anneau, ou elle peut donner du sang dans le tissu cellulaire, du peritoine, et faire *perir le malade, comme l’on a vu arriver.*”

LE DRAN.

“ Si le cordon spermatique est gonflé jusqu’ auprès de l’anneau, on ne peut suivre cette methode; et il faut *absolument* faire la ligature du cordon, immédiatement au dessous de l’anneau. The remainder of this paragraph does indeed seem a kind of contradiction of the preceding. “ S’il est tres gonflé meme un plus haut que l’anneau, et qu’on ne puisse se dispenser de faire l’operation, il n’y a point de ligature a faire; il faut fendre un peu l’anneau, puis couper le cordon, et l’artere ne donnera pas de sang.” Set aside all consideration of the propriety, or impropriety, of performing the operation, when the spermatic chord is diseased above the ring (as it is called) what can be the reason, why the artery should not be expected to bleed, after being divided within the abdomen; when the same gentleman allows it to have produced a fatal hæmorrhage, upon retiring into that cavity, or into the cellular membrane of the peritoneum, after having been cut off without the said ring.

schirrhous testicle is dependent, may be considerably enlarged, and distended, and that pretty high, and yet not so diseased as to render the operation unadvisable or unsuccessful, I have more than once or twice seen. The compression which may be made, of the extremity of the divided chord against the os pubis, on which some stress seems to be laid, will, whether it be made by the finger, or by compress and bandage, prove more troublesome to the patient, than the very momentary pain of the ligature.

The last circumstance, in which I have ventured to differ from the commonly-prescribed rules, is, that I have not advised the removal of any part of the scrotum.*

My reason is, that I never found it necessary in any case, when the scrotum was not adherent to the testicle.

Let the size of the schirrhus be what it may, the scrotum will corrugate to its natural form, when the wound is healed; and if in the operation it fairly be divided to the bottom, will neither lodge matter during the cure, nor produce any inconvenience afterward.

When

* “ Si quelque portion membraneuse a de la peine a se detacher, je la coupe, avec des ciseaux; et *quand le testicule est ote*, j’enleve une partie de la peau du scrotum, si cette peau s’est trop etendue par le volume de la tumeur.”

LE DRAN.

The same direction is given by Laur. Heister. “ Cutis scroti quæ *exempto testiculo* super vacanea ut refecari fornice debet.” By which means (that is, by not removing the skin along with the testicle, but afterward) the patient suffers almost as much pain, as the whole operation, properly performed, would occasion; and that without any necessity.

When it is adherent to the testicle, and the cellular structure of the dartos is thereby destroyed, all such adherent part should certainly be removed; not only because it is diseased, but because it will give the patient a great deal of unnecessary pain to dissect it: but then it should always be removed along with the testicle, in the manner directed by Mr. Samuel Sharpe, and not be dissected off first, and removed afterwards.

By the latter method, the patient's pain is increased, prolonged, and even renewed without the least necessity.

In every operation, in which a considerable portion of skin is to be divided, and particularly in this, and in the amputation of women's breasts, it should always be remembered, that, as the division of the skin (the general organ of sensation) is the most acute and painful part of what is done by the knife, it cannot be done too quick, and should always be done at once: the scrotum should always be divided to the bottom, and the circular incision in the skin of a breast always made quite round, before any thing else be thought of. If this be not executed properly, and perfectly, the operation will be attended with a great deal of pain which might be avoided, and the operator will be justly blameable.

Before I take my leave of this operation, I think it right to give the young practitioner a caution, viz. that if the tumor be of a pyriform figure, perfectly smooth, and equal in its surface, and free from pain, notwithstanding the degree

gree of hardness may be great, and he may, in his own opinion, be clear that the tumor is not produced by water, but is a true schirrhous, I would advise him, immediately previous to the operation, to pierce the anterior part with a trochar, in order to be certain. My reason for giving this advice is, that I was once so deceived by every apparent circumstance of a true, equal, indolent schirrhous, that I removed a testicle, which proved, upon examination, to be so little diseased, that had I pierced it with a trochar, previous to the operation, I could, and certainly should have preserved it.

Having, in the immediately preceding pages, given my opinion very explicitly concerning the expediency and propriety of removing, by the operation of castration, a schirrhous testicle, when fairly characterised, and properly circumstanced, it cannot be necessary to relate any such cases. Every man, who is at all conversant with this kind of business, knows, that the operation on proper subjects, and in proper instances, is very frequently successful; and that many people have been by it rescued from immediately impending misery, and have passed many years in health and ease, and in a state to propagate their species.

Particular accounts of such, would appear like mere boastings of success.

Those, therefore, which follow, are selected, either because the fortunate event was not very probable; and they may therefore serve to prove, that we should not too hastily or inadvertently despair.

Or,

Or, because their true nature was mistaken; and, therefore, they were improperly treated :

Or, that they were attended with circumstances not to be foreseen or prevented :

Or, that the case was too long neglected, and the operation too long deferred ; or performed when success from it was not at all likely :

Or, that they were combined with other complaints, either general, or local ; by which the best calculated attempts must be frustrated :

Or, that they contain something in their nature which appears to be singular. From each, or all of which, I apprehend, the practitioner may reap full as much, if not more, beneficial instruction, than from the most pompous histories of success.

C A S E X X X I X.

A M A N, about forty-seven years old, who had been, for the space of three or four years, afflicted with a truly schirrhous testicle, applied to me. He had been, more than once, during that time, advised to part with it, but was afraid of the operation. He was now alarmed by an alteration which it had lately undergone ; and from some circumstances in his general health which were new. The tumor,

mor, from its first appearance, had been indolent and equal, the spermatic chord in a natural state, and he had no other complaints of any kind. The testicle was now very unequal in its surface; it had increased considerably within the last three months; and the spermatic chord was enlarged, (that is) become varicose, more than half way from the testicle to the groin. He had also, a cholicky disorder, which recurred frequently without any purging.

The case was unfavourable; and there appeared to me to be no chance, but from castration: the state of the spermatic vessels rendered that dubious; but the improbability of the disease remaining in its present state, made it still worth embracing. The general state of the patient's health, was also an alarming circumstance; but neither could that be amended, while the local disease remained.

Having apprized him of all these circumstances, he willingly submitted to the operation; which was performed the next day. The state of the process just admitted of making the ligature between the enlarged part and the abdominal muscle. Nothing particular attended the cure; the sore healed very kindly, and the man has enjoyed a good state of health ever since; which is now, between four and five years.

C A S E XL.

A Gentleman from America applied to me on account of a complaint in one of his testicles. It had, while he was abroad, been supposed to be, and had been treated as, venereal; by which means, what was at first, a simple, equal indolent schirrhous, with a spermatic chord unaltered from a natural state, was, when I saw it, unequal, at times painful, and dependent from spermatic vessels considerably enlarged and swollen, though still soft, and free from knot or induration. He was, otherwise, in perfect health, his age thirty-three, and his constitution unhurt by debauchery or intemperance.

With regard to the testicle, there could be no doubt either of the nature of the disease, or the propriety of its being removed; but the state of the spermatic vessels was such, as made the prospect of success, from castration very uncertain. Two or three consultations were had; the result of all which were nearly the same, that is, the surgeons were very apprehensive of the operation, from the state of the chord, and therefore would not press it; and the physicians prescribed internal remedies; and, among these the cicuta, which luckily happened to disagree so much with the patient that he would not go on with it: I say luckily, because it thereby prevented the loss of more time in the use of it.

The

The patient was single, a sensible man, and had a great deal of courage and resolution in his natural constitution.

Having maturely weighed all that had been said to him, and finding that no relief was likely to accrue from medicine, and that his disease was as little likely to stand still, he determined rather to take the chance which the operation would give him, either of sudden destruction, or a cure, than live in that state of anxiety, which must arise from a constant meditation on the nature of his disease.

The operation was performed; and, in the execution of it, I was particularly attentive to the state of the vessels. The whole process was, I may venture to say, full double the size it ought be, and the veins very tortuous, by their being distended; but there was no induration, nor any inequality, save that proceeding from the varicose state of them.

When the testicle was removed, I examined that also very carefully. The cavity of the tunica vaginalis was, in a great measure, abolished, by an almost general adhesion of that membrane with the albuginea; the epididymis was tolerably found, but the whole compages of the testis hard, and diseased: and, in the very center of it was a putrid slough, and a very small quantity of ill-coloured sanies.

It is now above five years since the operation. The patient has enjoyed perfect health ever since, and finds no one inconvenience from the loss of the part.

In

In these two cases, the event was fortunate beyond expectation. In such circumstances, every thing is to be feared : the operation is seldom advisable, because seldom successful. However, they may stand as instances to prove, that, where there is even a small foundation for hope, it is better to embrace such opportunity, than to leave the patient to his fate. Neither himself, nor his friends, should, in such case, be flattered or deceived : but the uncertainty should be laid before them, and the operation should be their own choice.

C A S E XLI.

A Young man, about twenty-four years old, desired my opinion concerning a testicle, which was beginning to enlarge, and was already become very hard.

The account he gave, was as follows :

That, about seven or eight months before, he had a common hernia humoralis, in consequence the suppression of a gonorrhœa by hard riding. That the inflammatory symptoms were soon removed by rest, evacuation, and proper application; but that neither the testicle nor the epididymis, had ever returned to their natural size. That the surgeon, whose care he had been under, had, since the inflammation was gone off, given him a considerable quantity of mercurial medicine internally, and had rubbed on a good deal of the ointment

ointment externally; by which his mouth had been made sore; and that he had also taken two or three mercurial vomits.

The tumor was perfectly indolent, even upon being handled; it had a stony, incompressible kind of hardness, and the spermatic vessels were in a sound, natural state.

I told him, that whatever might have given rise to his disease, it was my opinion, that it was a true schirrhus; that it would never be cured by medicine; that, although it was quiet, and free from pain now, no man would pretend to say how long it might continue so; and that I should, by all means, advise him to part with it in its present state, rather than stay till such alteration should be made in it, as though it might induce him to comply, might render the operation unsuccessful. He disapproved my advice, and I saw no more of him for near four months; at the end of which time, he called upon me again.

His testicle was a good deal increased in size; but the spermatic chord still unaffected.

I repeated my former advice, and he again refused to comply.

At the distance of two months from this time, I saw him again. His testicle was still more enlarged, and the cavity of the tunica vaginalis palpably contained a fluid. He said, he had shewed it to two other surgeons; both of whom had promised him much relief, if not a cure, by letting out the water, which they told him, made the principal part of his disease. I answered that I had no manner of doubt that there was a fluid;

fluid ; but that I apprehended it to be much less in quantity than either he, or they who had promised a cure by letting it out, took it to be : that it appeared to me to make so small a part of the swelling, that I was sure, that the decrease of size, upon its discharge, would bear no proportion to his expectation ; that this fluid made no part of the original disease, but was an accidental consequence : that an opening made into a testicle so circumstanced might excite very disagreeable symptoms, from which he was at present free ; and that my opinion was still, that it ought to be totally removed, or not meddled with.

He left me with much dissatisfaction. He said, that I was too tenacious of my own opinion ; and too regardless of that of others. But I had seen too many of these cases to be in any doubt concerning its nature ; and I knew the people, under whose direction he then was, too well to suppose, either that they knew any thing of the matter, or that they would leave any thing unattempted, while he had either credulity or money. Soon after this, I heard, that he had submitted to have a puncture made, by which a very small quantity of bloody serum was discharged ; but the size of the tumor so little lessened, that his operator would fain have thrust a lancet in again, and deeper ; but this the patient would not permit.

Being vexed at what had happened, he came not again to me, till at the distance of two months more. He was now in a very different state. His complexion was wan and pale, his flesh and appetite gone, his testicle was very large, unequal and

and painful, and the spermatic chord diseased quite up to his groin. I was very sorry to be obliged to tell him, that I could do him no good; and that the operation was by no means advisable.

He now, of course, fell into the hands of those who only want a little ready money; and having tried two or three of these, he was advised to take the cicuta; which he did for some time, and in large doses, but (as usual) without any real, or permanent good effect.

His state, soon after this, became truly deplorable; his testicle was of an amazing size; the spermatic chord, quite up to his belly, so large as hardly to be capable of being grasped by the hand; a very large, hard tumor within that side of the belly; his pain acute and constant; and his flesh, strength, and appetite, totally gone.

In these circumstances, a believer in the omnipotence of the sublimate solution, prescribed it for him: from which he received the advantage of having his death hastened.

C A S E XLII.

A M A N, about thirty, of a full phletoric habit, shewed me a tumor in the spermatic process, about the midway between the groin and testicle: it was hard, circumscribed, indolent when not meddled with, but painful for a long time after having been handled, and the pain of such kind, as to indicate the disease not to have a very benign character: the testicle was perfectly free.

I advised

I advised the losing some blood, gentle evacuation by stool, the use of a suspensory to take off the weight, and desired the patient to let me see him again in about ten days. At the distance of somewhat more than a month, he came to me again; and told me, that from me he had gone to a rupture-doctor, who put a truss on him, and giving him an external application, bade him come to me again in a week; that the pressure of the truss, joined to the irritating quality of the ointment, greatly increased the pain and the swelling: that his doctor then applied an adhesive plaster; and when he had worn that a few days, he thrust a lancet into the body of the tumor; that nothing followed the lancet but blood; that he enlarged the opening, and filled it with lint; and that, for several days after, he had dressed the sore with red powder (precipitate). He had now as truly malignant a cancerous sore, as I ever saw; and all the spermatic process above it was so diseased, as to prohibit all thought of an operation. Nothing palliated the fury, with which it proceeded; he lived several months in great and constant pain, having a large hard body within the belly (on that side) extending from the groin quite up to the region of the kidney; and which, I make no doubt, consisted of the diseased spermatic vessels.

CASE

C A S E XLIII.

A M A N, about forty-eight years old, who lived at some considerable distance from London, perceived one of his testicles becoming hard; larger in size than it used to be; and when he was on horseback, somewhat painful.

Having been several times clapped, and twice confined with a hernia humoralis, he thought that this swelling was of the same kind; and applied to the apothecary of the town where he lived; who, not being much accustomed to surgery, and being misled by the patient's opinion and account, looked on it in the same light, and gave him several doses of calomel: these not succeeding to his wish, he confined the patient to his bed, applied a poultice to the scrotum, and vomited him twice or thrice, with the mercurius emet. flavus. By this process the man became feverish; lost his appetite, sleep and flesh; and the testicle increased, both in size and hardness.

I was now consulted by letter, and gave my opinion, that the case was not venereal; that mercurial medicines, or whatever was likely to increase the circulation, were wrong, and would be found prejudicial; that whatever might become necessary hereafter, the present intentions ought to be, to procure ease; to re-

move the fever, to keep the body (which had always been costive) gently open, and to acquire strength by the administration of soft, light nourishment; and I recommended the decoct. *sarsaparillæ*, with milk, for his common drink.

In another letter, which I received at about three weeks distance from the first, my opinion was asked concerning the *cicuta*: to which I replied, that in *schirrhous* and cancerous cases, (one of which I took this to be) I had never yet seen it do any good, though taken for a considerable time, and in large doses; but, on the other hand, as I had never seen it do any harm, I could have no objection to its being tried.

In about two months, or a little more, I had another letter, giving me an account, that the *cicuta* had been taken freely, and had also been constantly applied as a cataplasm; that, in about a month after its first application, the pains both in the part and in the patient's back, were remarkably increased; that he, now and then, complained of being chilly; and that there had been, from about that time, a palpable fluctuation of a fluid, near to the surface of the tumor; that this fluid had been let out by the point of a lancet, and proved to be only a small quantity of a bloody serum; that, from the time this opening had been made, the pain, as well as the size, of the tumor had increased; that, by continuing the *cicuta* poultice, with the addition of some Burgundy pitch, a collection of
matter,

matter, or imposthumation, was now produced, plainly to be felt, though deep in the body of the testicle : and I was desired to say, what I thought would be the properest manner of giving discharge to it.

I returned answer, that it was a very disagreeable thing, to be obliged to give a positive opinion on a case by relation only ; and that from those, who, I was sure, thought not of it as I did. That, as it was by no means unlikely that I might be mistaken, I desired, that what I should now say, might not be understood, or applied to any other case, than what *I took this to be* ; that I took it to be a schirrhous, which was becoming cancerous apace, and would, very soon, show more of its malignant disposition ; especially, if irritated. That the fluid, which had been let out, was nothing more than the water of the tunica vaginalis ; whose absorption was prevented ; and whose colour was produced by the diseased state of the testicle. That I should not have advised the letting it out at all ; much less, in that small quantity. That it was my opinion, that the fluid, which was now supposed to be felt to fluctuate deep in the body of the testicle, was, by no means, matter, or the effect of a kindly suppuration ; but a malignant sanies, the consequence of the very diseased state of the testis. That I did verily believe they would find, that the quantity of it bore small proportion to the size of the general tumor. That the letting it out would, more probably, occasion an aggravation than an alleviation of

symptoms, and render the disease still more painful and more hazardous than it was already. And that I should not be surpris'd to hear, that there was no fluid at all.

To this I received a short reply, signifying, that it was apprehended I had mistaken the case. That another gentleman in London had been consulted; who (from the account given of the state of the spermatic chord, of the preceding herniæ humorales, and, most probably, from a misrepresentation of the case) had advised the making an opening by knife; which had been done: but the writer of the letter, did not say a word, about what was let out.

I heard no more of the case, or patient, for near another month; and then was sent for, one evening, to an inn in this town, where I found him in a situation truly deplorable. The testicle was amazingly large, and one half of it covered by a prodigious fungus, which was intolerably painful, gleeted largely, and, at times, bled profusely; the spermatic process was also very large, and a tumor plainly to be felt within the belly, caused by the diseased state of the seminal vessels. The man's strength and flesh were exhausted; in short he was dying, and did not live above a week or ten days, from this time.

I believe, it must be unnecessary for me to observe, that the misconception of the nature, and the method of treating, the three preceding cases, had no small share in contributing to the sufferings of the patients, and to the fatality

lity of their events. I believe also, that most practitioners, who have been conversant with this kind of business, will be of opinion, that the operation, performed in due time, would certainly have contributed to the ease, and perhaps to the preservation of them.

A cancerous disposition in the habit will, certainly, render a patient liable to be destroyed, by the diseased state of parts out of our reach; and thereby render the operation, although performed in due time, in the best manner, and under the most favourable apparent circumstances, unsuccessful: but as this very often cannot be foreseen, or foreknown, surely it must be very wrong, to omit doing what may preserve health and life, only because it may also happen, that it may do neither. In all these cases, a guarded prognostic should be made; and it should be considered, that, tho' we are sometimes deceived, and frustrated, by sinister events; yet, on the other hand it happens, and that not infrequently, that cases, which have even an unfavourable and threatening aspect at first, come to a very happy issue.

C A S E XLIV.

A Man, about fifty years old, desired my advice concerning a diseased testicle. It was about the size of a small pomegranate,
very

very hard, perfectly free from pain, and the spermatic process free from all appearance of disease. Castration, he said he was determined not to submit to; and only wanted to know whether I could put him into any other method of getting rid of his disease. I gave him my opinion very freely, on the great improbability of his being served by any other means: and, though I did in some degree, advise him to submit to the operation, yet there were some circumstances in his general health, which induced me not to press it; and made me rather pleased, that he was previously determined against it. He had a very fallow diseased complexion, a general want of muscular flesh, and firmness; a very frequent cholic, sometimes attended with a threatening diarrhoea, and sometimes with an obstinate constipation. In the space of two or three years, he took a great variety of medicines; and saw a great number of practitioners, both regular and irregular, but found no benefit; neither did the testicle in all that space of time suffer any material alteration, or the process become at all affected. He died of an obstinate and painful dysentery: and when he was opened, his mesentery was found full of large, hard, schirrhous knots; all the lymphatic glands about the receptaculum chyli, and beginning of the thoracic duct, remarkably diseased; and the liver much enlarged and hardened.

The want of an healthy appearance, the pains, and other complaints which attended the man, might have been owing to causes independant of his schirrhous testicle; and upon such supposition, the removal of the said testicle by the operation might

might have been vindicable : but if it had been done, it should have been, under a very guarded, and doubtful prognostic.

C A S E XLV.

A Man about fifty, shewed me a large, diseased testicle, which he said had been gradually, for near four years, getting to that size and state ; and was produced, as he thought, by the kick of a child.

The surgeon who attended his family had often seen it, while it was small, equal, and free from pain ; and had as often pressed him to part with it ; but while it was easy, he would never think of it.

It was now large, and unequally hard ; it had, in some parts of it, a quantity of fluid, in others none ; it was very painful to the touch ; it gave him great uneasiness in his back, from its weight, and even while it was suspended, or he was in bed, he had such and so frequent darting pains in it, as to render him very unhappy, and to deprive him very much of his natural rest. The spermatic chord was perfectly free ; but the frequency of his pain, and the disturbance of his sleep, gave him a very unhealthy appearance. I told him, that I thought he had missed the most favourable opportunity, by not submitting to the operation while the testicle was small, smooth, and indolent ; that some circumstances in his general state and habit were unfavourable ; but still, as the spermatic

matic process was free, and as there was no great probability that the testicle would ever again be easy, or cease to increase in size until the spermatics should become diseased also, I thought it was better to take the chance of the operation, than submit to that certain misery which must attend the farther progress of the disease.

The patient consented; the operation was performed; and every thing went on in the most favourable manner, till the sore was reduced to the size of a sixpence: he was then seized with a pain in his belly, the sore changed its aspect, and from appearing to be almost healed, it fretted, became foul, spongy, and spread so considerably, that, in a fortnight's time, it was as broad as a hand; it bled frequently, gleeted largely, was extremely painful, and very offensive; nothing was done had any good effect on it; and, having languished some months, he died.

Some of the circumstances in this case were undoubtedly unfavourable; but I have seen people do very well under similar ones; and I still think, that the patient chose the lesser of the two evils, and embraced the more probable chance.

C A S E X L V I .

A Poor man, who was in St. Bartholomew's Hospital for a hurt in one of his legs, desired me to look at his scrotum which was of a very large size.

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The tumor was principally formed by water in the tunica vaginalis testis; but, through the fluid, it was easy to distinguish a diseased testicle. He complained of uneasiness from the weight and had, he said, now and then, a pain shot up from the testicle into his back; he had also now and then, a cholic with nausea and inclination to vomit; and was very subject to a sort of stranguary. I drew off near a wine quart of a yellow thin fluid, by means of a trochar; and, when that was done, was so satisfied that the testis was diseased, that I would have immediately removed it; but the man would not consent. He soon got well of his leg, and was discharged from the hospital.

He was a bricklayer's labourer; and in about a fortnight or three weeks time from his discharge fell from a high scaffold, and was so much hurt that he died, after he had been again in the hospital two days; and I gladly embraced the opportunity of examining his dead body. The tunica vaginalis was not only much distended, but considerably thickened. The testicle was a great deal too large, and too hard; but upon division, did not shew any considerable mark of disease, except in its very center, where there was a small quantity of a discoloured sanies, and a putrid slough. The spermatic vessels were not at all altered from a natural state, except that the vein was varicous. Immediately below the emulgent vessels, on the right side, was an irregular tumor, near as big as the kidney itself, perfectly schirrhous, and firmly attached both to the renal blood-vessels, and the aorta. The external part of this tumor was
rough

rough and unequal, and of a whitish colour; and in the center of it were exactly the same appearances, as within the testicle, viz. a small quantity of matter, and a flough.

Where the ureter was crossed by this tumor, it was much compressed, and straitened in its diameter; but below this stricture, it was considerably dilated. The kidney was not quite healthy in its appearance.

Had this man been castrated, I make no doubt that his internal schirrhous would have destroyed him; but that was a circumstance not to be collected from his general state, or from his complaints, and therefore not to be foreknown: the operation would therefore have been vindicable, though unsuccessful.

C A S E XLVII.

A Middle-aged man was brought into St. Bartholomew's Hospital, for an accidental hurt of which he soon got well: and when he was going to be discharged, he desired Mr. Freke, whose patient he had been, to look at one of his testicles. It was large and unequally hard; gave him a great deal of pain at short intervals, and seemed to contain a quantity of fluid in its middle part: the spermatic chord was pretty free, just at its exit from the abdomen; but all between that point, and the testicle was much diseased.

Some of the gentlemen present expressed their apprehensions, that the *state* of the process was such,

such, that the operation would most probably be unsuccessful, and therefore they were rather inclined, that the man should be discharged without any attempt of that kind ; but Mr. Freke thought otherwise, and performed it immediately. The vessels of the diseased process were varicose to a great degree, and very knotty and hard ; the connecting membrane was much thickened, the epididymis and testicle quite confounded together, and in the body of the latter was a quantity of bloody sanies, contained in two or three large cells.

The man got no rest after the operation, the vessels of the dartos bled through all the dressings more than once, and in a few hours he became very hot and restless, with a pulse quick and hard.

The next day he bled again ; not from the chord, but from the whole dartos ; his scrotum became much swelled, and loaded with a lymphatic kind of tumefaction, but was very little inflamed ; his pulse was inconceivably rapid, but small, he complained of acute pains in his back, a burning heat within it, an intolerable thirst, and an anxiety that was more terrible to bear than all the rest : toward night (of the second day) his pulse faltered, he became easy, and his extremities cold ; and early on the third morning he died.

C A S E XLVIII.

A Healthy man, under forty, came to me with a complaint in one of his testicles,
the

the epidydimis of which was much enlarged, and hardened, while the body of the testis seemed to be in a natural state.

His age, his general appearance, and the particular state of the part, induced me to believe it to be venereal; but upon asking him a few questions, he asserted, that he had never received any taint of that kind in his life. He said, that the first time he had ever taken notice of this complaint was about six weeks before, after riding hard in the day and dancing all night; that it was very small at first, had increased gradually, and now began to be very troublesome to him, either in riding or walking; and that not only from its mere weight, but from frequent pain in it.

I am obliged to acknowledge, that I was, at this time so prejudiced, by the generally prevailing doctrine, that a true schirrhus or cancer never began in the epidydimis, that I thought, either that my patient was deceived himself, or had a mind to deceive me.

I therefore gave him a mercurial pill to take every night, consisting of a small dose of calomel, with some kermes mineral, and directed a small portion of ung. mercur. to be rubbed every evening into the spermatic process.

By pursuing this method for about ten days, his mouth became sore, and he was much displeased thereby; I gave him some gentle cathartics, but his spitting kept at above a pint a day, for more than a fortnight: at the end of which time, the hardness, as well as size, and inequality of the epidydimis and vas differens were manifestly

riestly increased; and his uneasiness in these parts was greater.

The death of a near relation now called him into the country, where he staid about a month. At his return, he sent for me. The disease was increased, but still confined to the epididymis; which was now in that state, which, I suppose, constituted the caro adnata of the antients: it was hard, craggy, painful, and in size nearly equal to the testicle itself: the darting pains were frequent; and the uneasiness from its weight was constant and tiresome.

I was now satisfied of the true nature of the case, and let drop a hint of the propriety of removing the part; but having a very delicate and timorous man to deal with, I desired him to take the opinions of some other gentlemen.

He saw Mr. Middleton and Mr. Nourse as surgeons; and a third gentleman as a physician.

The two former advised immediate castration; the last seemed to wish him to take the cicuta, or the solanum, medicines then in fashion. The thought of castration shocked him so much, that he willingly embraced any hints concerning specifics.

He took the cicuta for more than two months, beginning with a small dose, and increasing it gradually to very large ones. It now and then made him a little sick and giddy; but the disease increased under it so manifestly, that I was apprehensive that we were doing much worse than merely losing time. I signified my suspicion,
and

and pressed the operation; but he would not hear of it.

The solanum was now tried under the direction of the doctor; but it disagreed so much, even in the smallest quantity, that there was no possibility of persisting in it.

Upon this, as upon most occasions of this kind, every acquaintance recommended either a specific or a quack; most of which were tried, and I saw no more of my patient for above four months.

He then sent for me again. The whole testicle and spermatic process, quite within the belly, were thoroughly diseased, hard, and knotty; his pain was acute, and almost constant; and his whole appearance truly pitiable.

He was much displeased that I, who had often pressed him to submit to the operation, would not now perform it; but it was too late. In a few days after this visit, he applied to an operator; who required a very considerable fee beforehand, and layed the whole spermatic process open. A very terrible hæmorrhage ensued, and he died the next day in inexpressible agony.

I visited a patient with Mr. Markland, whose first local complaint was a hardened, enlarged epididymis, and vas deferens; and upon whom the whole power of mercury, and other supposed deobstruent medicines, together with cataplasm, fomentation, &c. were tried, during a long space of time, in absolute confinement, but to no good purpose: the part became so large, so diseased, and so painful, and the habit of the patient so much affected by it, that extirpation was absolutely necessary. When the part was removed,
I examined

I examined it very carefully ; and never saw a more true and perfect schirrhous in my life. The epididymis was thrice the size it ought to have been ; its external surface was very unequal, and very hard ; and in the center of it was a putrid slough, with a small quantity of matter, just as it is found very often in the middle of a schirrhous and cancerous testicle. The testicle was hardly, if at all, altered from a natural state, except that the tunica vaginalis was generally adherent to the albuginea. Its internal texture was soft, and bore very little mark of distemper.

I have, at this instant, a lad in St. Bartholomew's Hospital, both whose testicles are so truly diseased, that they must of necessity be removed. I have seen him from the first of the attack. The disease for several months occupied only the epididymis ; and had no connection with, or dependance on, any venereal mischief. Every thing that the art of surgery could do (or at least every thing that I am acquainted with in it) has been tried, but without any effect ; and nothing but the operation can save him.

C A S E XLIX.

MR. William Sharp desired me to visit a patient with him. The case was a schirrhous testicle. It was large, and very hard ;

hard ; but smooth, equal, and no other way painful, than from its weight. There was nothing in the testicle, which forbad the operation ; on the contrary, it was in such state, as to promise very fair for success ; but the spermatic process, from the testis quite up to, and apparently within, the opening in the abdominal tendon, was so large and full, that it was impossible to feel the vessels. This fulness, and increase of size, if it could be supposed to proceed from a diseased state of these vessels, and their membranes, was such a bar to castration, that nobody could possibly think of it in such circumstances : but, on the other hand, if it could be supposed to be owing to an extravasated fluid, the withdrawing such fluid might make a very material alteration in the state of all the parts. Mr. Sharp said, that he had seen this patient some months before, and had let out (as he thought from the tunica vaginalis) a quantity of water ; and that he then found the testicle a great deal too large ; and was very sure that he then distinctly felt the spermatic vessels. The tumid process, though large, full, and tight, yet was smooth, and equal throughout ; and I thought, that I could very plainly feel a fluctuation through the whole of it ; that is, from the opening in the oblique muscle, to the upper part of the testicle. The patient was young and healthy, the weight and size of the testicle very troublesome ; and nothing but this state of the process in the case, to make it necessary to defer the operation a moment. A puncture was
made

made with a large lancet, into the tumor just above the testicle ; near a pint of clear yellow serum was discharged ; the swelling subsided ; the spermatic vessels, which were in a sound, natural state, became easily distinguishable : the operation was immediately performed, and proved successful.

C A S E L.

A Poor sailor, who had been discharged from one of the navy Hospitals, applied to St. Bartholomew's.

He had a schirrhous testicle, which was not large, but was as hard as marble ; very craggy and unequal, and attended with frequent acute pain: the process also was so large, that, upon such examination as I had then time to make, I told the man, that I did not conceive, that he could receive any benefit, even from the operation ; but one of the governors, prevailed on by the man's solicitation, desired that he might be admitted.

The first time we were all met together, I produced this man for the general opinion ; which was, that if the increased size of the spermatic process was the effect of a diseased state of the parts composing it, the operation was improper, as it would only hasten the man's death, and that in a very painful manner ; but if it could be thought to be owing (as in the preceding case) to an extravasation

of fluid in the common membrane, it was certainly worth while to try what the discharge of that fluid might produce.

The whole was related to the man: he was informed of our doubts, of what we intended to do, and of the probability that it might be of no service to him: a puncture was made in that part of the process where the fluid was most palpable; a large quantity of lymph was discharged, the tumor subsided, the spermatic vessels became very distinguishable; the operation of castration was immediately performed, and the man went out from the hospital well.

C A S E L I.

A Poor man was taken into St. Bartholomew's Hospital, for a complication of complaints; but particularly for a frequent and acute pain in his back and belly.

When he had been there a day or two, he told the nurse, that he had a complaint in his scrotum; and the next day I was desired to look at him.

He had a diseased testicle, of the schirrhous kind, which was not very large, but was hard and unequal; the spermatic process was not in a natural state, nor very much diseased; and he had a large and very troublesome omental hernia. The man had also a very morbid aspect; had his rest frequently disturbed by pain, and was near to fifty years old.

He

He was very solicitous to have something done for him, and willing to submit to any thing for that purpose; but his case was such, as to render it not an easy matter to determine what to do.

His rupture was large, and very troublesome; it was merely omental, and could not be kept up a moment, while he was in an erect posture, without a truss: a truss he could not wear to any good purpose, without the pad of it pressing on the spermatic chord, and aggravating a greater evil than his rupture, viz. his schirrhous testicle. The weight of his rupture, added to that of his schirrhus, rendered it impossible for him to get his bread by labour.

The only method whereby he could be made capable of wearing a proper bandage for keeping up his rupture, or even of suspending it with ease, was by submitting to have the schirrhous testicle removed by castration; and then, his rupture being returned, he might be enabled to wear a truss. But to this there were some objections. In the first place, the hernial sac came so low, that the process could not be tied, or cut off, without the sac having been first either laid open, or dissected off from it. In the next place, I did not like the state of the spermatic process, which was both too large and too hard: and in the third place, I thought the general circumstances of his morbid appearance, and bad state of health, were great objections to operations of such consequence, as either the laying open, or dissecting of the hernial sac, from the spermatic process; or castration.

All this was related to the man in the fairest manner possible; and he desired to have such, or any operation performed, which I should think right.

Having been confined to his bed for more than a week previous to the operation, the omentum had hardly ever been down during that time, and was now perfectly up. This, though it might prove a circumstance in the man's favour, was none in mine as an operator; for the hernial sac being empty and flaccid, gave me thereby more trouble. The hernia was of the congenial kind; and, consequently, when I had divided the sac to the bottom, the state of the spermatic chord and testicle was manifest; and I had only to pass my needle and ligature round the upper part of the former without paying any more, or particular regard to the hernial sac. Upon a nearer view of the state of the process, I liked it still less than I had done before; but there was nothing now could be done, but to go through with the operation, and to take the chance of it. I did so; the man bore it well, and was better, for the first two or three days, than I could have expected. After the first week was past, I was daily surprised at the good state of my patient. He was easy, free from pain or fever, slept well, took nourishment; and it was impossible for any sore to be, or to look, better.

At the end of three weeks, when he was to all appearance well, and his sore almost healed, he was suddenly seized with pain all over him, and died on the second or third day from this attack.

I had

I had him opened. The portion of omentum, which had formed the hernia, had an attachment to the peritoneum, just within the mouth of the hernial sac; which, I suppose, was the reason why it could not be kept up while he was erect. The lymphatic glands about the lumbal vertebræ were all diseased; the liver was schirrhous throughout, and had a large collection of matter in its lower part.

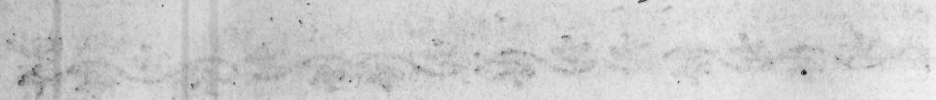
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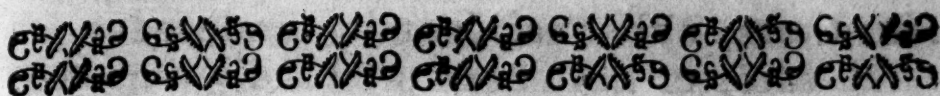
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ACCOUNT, &c.

AN Hydrocele is so irksome a disease to the indigent and laborious, furnishes even the easy and opulent with such disagreeable ideas and apprehensions, and is to all who are afflicted with it so troublesome and inconvenient, that every rational attempt toward relieving mankind from such an evil, will, I make no doubt, be favourably received.

It is now some years since I first began to make particular inquiry into the nature of this, and some other diseases of the testicle, and the usual methods of treating them; an inquiry which they appeared to me, for many reasons both to deserve and require. The result I communicated to the public, under the title of, "A Treatise on the Hydrocele, or Watry Rupture, and other diseases of the testicle, its coats and vessels;" in which I endeavoured to be as precise, and as explicit as I could.

One

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One part of this tract contains an examination of the various means, which have at different times, either accidentally produced a radical cure, or have been professedly proposed, and practised for such purpose.

Among other means used to obtain this end, I mentioned the Seton ; and spake of it as that which, for many reasons, appeared to me to be preferable to all others ; as a method which I had for sometime practised with great success; and as that which, if nothing should occur to induce me to change my opinion, I should continue to make use of.

Since that time I have had frequent opportunities of repeating the experiment, and it has so constantly, and uniformly answered my expectation, that my opinion concerning it is determined ; and I am convinced, that it is the most successfully efficacious of any.

This might be urged, and would perhaps be admitted, as a good reason for laying my thoughts on the subject again before the public ; but I have others also to plead in vindication of the few following pages.

In the first place I think that I have considerably and materially improved the operation and process ; and have rendered it less painful, and more certain.

In the second, I find, that what I said of it in the general treatise, has not been so clearly and perfectly understood as I could have wished ; and in consequence either of brevity and obscurity on my part, or misintelligence on the part of some of my readers, my true meaning
has

has not been received; and I have been subjected to the frequent interruption of troublesome correspondences on the subject.

And, in the third place, I might add, that some few gentlemen of consequence, who have by this means been cured, have requested this publication.

A minute account of the nature and circumstances of the disease, would be a mere repetition of what I have already said at large in the book referred to; would be therefore unnecessary, and beside my present purpose; a short and cursory one may perhaps throw just as much light on the subject, as may serve to render the description of the operation, and the treatment after it, more easy intelligible.

The common bag in which both the testicles are included, is called the Scrotum, and consists of epidermis, skin, and that loose cellular membrane, which is here called the Dartos; to which might perhaps be added, the expanded fibres of the cremaster muscle on each side. The proper coats of the testicle, are, the tunica albuginea, and the tunica vaginalis. The former of these immediately invests the vascular compages of the testis, and is that coat with which it is covered while within the cavity of the abdomen, before birth. The latter is formed on the outside of the said cavity, is a process of the peritoneum, and is placed ready for the reception of the testicle when it shall be thrust forth through the groin into the scrotum. Between the vascular structure of the
testicle,

testicle, and the tunica albuginea, there is no vacuity; but the external surface of the gland is in every part firmly adherent to, and connected with the internal one of the investing coat; the tunica vaginalis forms a hollow cavity, or bag, which loosely and unconnectedly envelopes the testicle, covered by its albuginea.

When I say loosely and unconnectedly, I would wish to be understood aright. I do not mean that the testicle hangs in the middle of the tunica vaginalis (like a clapper within a bell) and has no connection with it; I mean, that all the superior, anterior, and lateral parts of the tunica vaginalis are loose from, and unconnected with the testicle, which is at the same time firmly united to its posterior part, in such manner, that if the cavity of the tunica vaginalis was to be distended with wind, such wind would occupy or fill all the loose and unconnected part, and produce a tumefaction not unlike to a hydrocele, while the testicle would be found firmly and immoveably attached to the hinder part of the said cavity so distended.

To prevent the accretion of these coats in those parts where they ought to be unconnected, and perhaps for some other purposes, the cavity of the tunica vaginalis is furnished with a fine lymph constantly exuding into it; which lymph is as constantly absorbed by proper vessels; so that in a healthy and natural state, there is never any more of this fluid, within the bag, at a time, than may just serve (beside what other purpose it may be intended for) to keep the two membranes from coming into immediate dry contact, and cohesion
with

with each other. This small quantity is sufficient to preserve the proper and natural cavity of the tunic; but never occasions any degree of intumescence, or any unnatural or diseased appearance of the part.

A deficiency, or total failure of the secretion of this fluid, will be followed by a partial or total coalescence of the two coats with each other; and consequently a total or partial abolition of the cavity, a super-abundance, or a secretion of more than the absorbent vessels can take up, must, on the other hand, enlarge and distend the said cavity, by carrying all the loose unconnected part of the bag farther and farther from the testicle, in proportion to the quantity accumulated. The former I do know to be sometimes, and I verily believe most frequently is, the consequence of a severe hernia humoralis, as well as of other inflammations of the testicle. The latter, among other diseases produces the hydrocele or watry rupture.

This being the case, that is, the intumescence of the scrotal bag being caused by the gradual accumulation of a fluid, which ought to have been absorbed, it is almost always produced gradually; and therefore has, in most instances, made some progress before it is taken notice of; especially by careless and inattentive people. For the same reason it will be found, that as it depends upon the circumstances of secretion and absorption, it will in different people, make quicker or slower progress, according as the deposition shall happen to be quicker or slower, and the absorbent faculty, only more or less impaired, or totally obstructed.

As

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As this disease is confined to the cavity of the tunica vaginalis testis; and as this bag has no communication with the cavity of the belly, the tumefaction can never be lessened by any attempt toward reducing or returning it into the abdomen. For the same reason, it never is, nor can be liable to any alteration of size, or temporary distention, from the efforts or actions of coughing, sneezing, expulsion of fœces, &c. For the same reason (I mean the confinement of the fluid within the cavity of the tunica vaginalis) the intumescence when early attended to, will always be found in the lower part, and does not rise above the upper part of the testicle, until the disease has made some progress, and the quantity is become considerable: therefore the spermatic process will always, in the early stage of this distemper, be capable of being felt perfectly and distinctly; altho' when the tumor has arrived to any considerable degree of size, the fluid does so conceal the testicle, as to render it not a very easy matter to find it. The three last circumstances well attended to, will always serve to distinguish the hydrocele from the intestinal hernia, or common rupture, at least in the beginning. To these might be added, several other characteristic marks of this distemper; such as, that being neither accompanied by, nor occasioning any inflammation, or irritation, it never gives pain, unless it be very rudely handled, or be permitted to attain such size as to be troublesome from its weight, or to be subject to excoriation from its magnitude; which may serve to

to distinguish it from the hernia humoralis, an inflammatory, and often a very painful disorder. That if the fluid be thin and limpid, and the vaginal coat and membranes of the scrotum not thick, the tumor is often in some degree transparent; that is, the light of a candle or lamp may be seen through it. That constipation of belly does not render it at all more tense or produce any uneasiness in it while it lasts; neither does the removal of such obstruction or constipation at all lessen its volume, or make any alteration in it either to the eye, or to the finger. To all which ought always to be added, the *fluctuation of the fluid*.

The size and figure of the tumor, caused by this disease are liable to considerable variety, dependant upon the quantity and consistence of the fluid accumulated; the time such accumulation may have taken up; the thickness or thinness of the vaginal bag, and membranes of the scrotum; and the equal or unequal manner in which these parts may have given way to the distention. Hence the tumor will be larger or smaller, round, flattish, pyriform, or globular; will be firm, tense, and resistant, or lax, soft and easily compressible; smooth and regular in its surface, making one uniform figure, or divided by a kind of depression or stricture, which will make it appear as if the water was in two distinct facculi or bags; it will also be more or less tense, as well as regular in its surface, as the contractile power of the scrotum, by means of the cremaster muscles, shall be more or less.

The

The qualities of consistence and colour in the contained fluid is also various: it is thin, aqueous, roapy, viscid, limpid, citrine, greenish, brown, bloody, clear, or turbid; from each of which some small differences in the aspect, feel, weight, transparency or obscurity of the tumor will arise; but are of no consequence with regard to any method of treatment, palliative or radical.

The methods of cure of a hydrocele are said to be two, one called the Palliative, the other the Radical; the latter of which alone deserves the name of cure.

The former consists merely in letting out the water occasionally, and is so simple and so trifling an operation, that I shall say nothing more of it, than that I think a small trochar, a much preferable instrument for this purpose, on all accounts to the lancet or any other.

The radical cures as they are called, may be collected from the writings of several of our predecessors. The general means they made use of were cautery, caustic, ligature, and tent. For the particulars relative to each of these, I must beg leave to refer my reader to the writers themselves, a minute detail of them not being consistent with the plan of these few sheets. But without entering into such disquisition, I believe I may venture to say, that whoever will give himself this trouble, will find that all the means which were either professedly used to obtain a radical cure, or which ultimately

ly and accidentally produced such event, were put in practice for three general reasons, or under the influence of three general opinions; the first of which was, that the fluid found in the sac of a hydrocele was always originally formed in the cavity of the belly, and descended from thence into the scrotum; the second, that it was a disease of the habit, as well as of the particular part; that is, that it was general, as well as local; the third, that the collection of liquor found in it was either the necessary cause, or the consequence, of a diseased state of the testis.

From these flow the applications of cautery and caustics to the groin, and of ligatures on the spermatic process. From these are derived all the cautions to undertake the cure guardedly, to conduct it slowly, and to attend rigidly to the patient's general state, by cathartics, alteratives, specifics, issues, &c. &c. &c. and to these we owe the experiments made to induce suppuration from the parts affected.

Not being acquainted with the anatomical structure and disposition of the parts concerned in the disease, they had very terrible as well as very erroneous notions concerning it. They supposed that the fluid contained in the cyst was thrown off from the habit as a kind of crisis; that the general constitution of the patient was by such deposition much relieved; that it prevented many other, and those worse disorders; and, either that a morbid state of the testicle and epididymis concurred in produc-

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ing the fluid, or that the same parts necessarily became diseased from lying in it. They therefore concluded, that although a radical or perfect cure might be obtained by certain means, or that certain means having been found now and then to have produced such event, they might with probability be expected to answer such purpose; yet the attempt ought never to be made without a strict attention to the general evils which might ensue, as well as to the particular ones proceeding from the supposed morbid state of the parts.

Inquiry and experiment have taught us better; have given us truer notions of the nature of the complaint; have induced us totally to lay aside many of the means used by our fore-fathers; and although we do still in some sort continue some of them, yet it is upon different principles, and with very different views.

The noxious quality of the fluid, the diseased state of the parts whence it proceeds, or wherein it is deposited; the critical, or depuratory nature of the deposition; the necessity of drawing off the water partially and at short intervals; and the fear of curing it locally lest the general habit should suffer; are all now known to be groundless apprehensions: and it being also known, that the collection of fluid is originally made in the tunica vaginalis only, and that it does not descend from the belly, all attempts toward preventing such descent are become equally absurd.

The testicle, although frequently somewhat enlarged in its dimensions, and relaxed in its texture, is known to be sound, to be otherwise unaffected

affected and unaltered, and to be fit for, and capable of performing the functions it was designed to execute; the fluid is acknowledged to be innoxious in its nature, neither proceeding from parts in a diseased state, nor causing any disease in the part in which it is deposited, and with which it is in contact; but being accumulated in consequence of constant secretion, and deficient or non-executed absorption, the intention of every rational practitioner, when he aims at a radical cure, is, to abolish the cavity of the tunica vaginalis, and thereby to prevent any future collection.

Whatever means can accomplish this end with the least fatigue, pain, or hazard, are certainly the best.

Of the incision I shall in this place say nothing, except that it lies under so many restraints from a variety of circumstances, is so improper for the majority of persons afflicted with the disease, and requires such nice attention and such judicious management, that it never can be recommended as fit for general practice.

The caustic upon the rational principle of which I am now speaking, viz. that of abolishing the cavity of the tunica vaginalis, has been practised by many; and that with such success as to induce some to think it the best and most eligible method: Among these is Mr. Else, who has lately published his opinion on the subject.

The introduction of suppurative medicines, by means of a tent, was practised by some of even our remote predecessors; and, as they tell us, with success, even in complicated cases; that is, in

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cases where a diseased state of the testicle has been added to the hydrocele : But whoever will attentively consider their accounts of this matter will see, that this method, whatever might be its accidental consequence, was not intended for the purpose which I am now speaking of.

Perhaps there is no part of surgery which was less understood by our ancestors, or concerning which they expressed themselves with so little precision as the subject of diseases of the testicle : they have multiplied and confounded them in such manner, and speak of them in such a jargon of unintelligible terms, that it is next to impossible to understand often what they really mean.

For a particular elucidation of this subject, the chirurgic world are much obliged to the late Professor Monro of Edinburgh, and Mr. Samuel Sharp, late of Guy's Hospital, now of Bath.

The accounts which many of the best among the writers in surgery, even quite into our own time, have given of the diseases of these parts under the terms *sarcocoele*, fungus attached to the spermatic vessels, fungus arising from the testis, hydrocele, and hydro-sarcocoele, are error itself ; and the operations which they describe and recommend, are many of them coarse, and either impracticable, or very unfit for practice. But however from these accounts strange and irrational as they are, we may collect that they conceived the diseases which they call the hydro-sarcocoele, and the *caro adnata ad vasa spermatica* to be (in contradistinction from the *sarcocoele* and the fungus springing from the testicle,) curable diseases, the one by extirpation of the fungus, the other by suppuration.

No

No precise definition of what they have thought proper to call the hydro-farcocoele has been given by them, and therefore we have no better method of forming a judgment concerning it than by considering the event and success of their method of treating what they have so called, with what we know concerning the structure of the testicle, its disorders, the means which we now find to be successful in them, and the disappointments, and disagreeable circumstances which sometimes occur in them.

Fabritius ab Aquapendente has been particular on what he calls the hydro-farcocoele, and has given an account of his method of curing it; but whoever is acquainted with diseases of the testicle, and will compare with such knowledge what Fabritius has said concerning his method and its success, * will, I am inclined to believe, think on this subject as I do, which is, that the disease which he gives this hard complex name to, is nothing more than a true, simple hydrocele, in which the testis is somewhat enlarged beyond its natural size, and perhaps somewhat relaxed in its texture, in consequence of such enlargement; but still sound, and free from disease; still fit for, and capable of executing its office.

That

* “ Si carnosâ simul et aquosa sit hernia, ego talem adhibeo curam. Seco cutem et incisionem facio & exiguam, et in loco potius altiori quam in fundo, inde turunda imposita, cum digestivo et pus movente medicamento procedo, neque unquam totum pus extraho, sed perpetuo bonam intus relinquo, quod sensim carnem corrodat & ita sanat.”

FAB. AB AQUAPENDENTE.

That by his method he obtained a radical cure I make no doubt; his 'turunda digestivo, et pus movente medicamento imbuta,' would most probably occasion a sloughing of the tunica vaginalis, and consequently an abolition of the bag or cavity; but whoever knows any thing of these matters must know, that a testicle really and truly diseased would not bear such treatment; and therefore that his success was owing to the state of the testicle *not being* what he supposed it to be, and what the term he makes use of implies.

The method of Fabritius was within a few years past adopted and practised by Ruysch. *

The means and conduct were nearly the same, and I have no doubt that the success was equal. But the same objection still remained; which was, that not only a suppuration was brought on, but the whole tunica vaginalis was so irritated and inflamed, that it necessarily became sloughy, and was entirely destroyed. An objection which had been made to the method by caustic, and which I must acknowledge, is, in my opinion an objection to it still.

The late professor Monro, whose observations on the diseases of the testicle are very pertinent, and

* "Sanari quidem valet id mali pertuso scroto ope instrumenti trochert dicti, vel lanceola phlebotomica, ut aqua vulnere exeat, sed cito plerumque recrudescit *malum*."

"Si *autem* curationem aggredieris aperiendo scrotum a parte superiori, ad latus, tumque vulnus turunda oblonga, unguento rosaceo mercurio præcipitato rubro inuncto oppleveris, donec lenis inflammatio, eique succedens suppuratio parva, membranules stillantes putrescerit, tuncque eas tenaculo eduxeris, &c."

RUYSCH.

and very ingenious, seemed to think that it was by no means impracticable, by means of a slight degree of irritation, to excite such an inflammation both in the tunica vaginalis and albuginea, as might occasion a coalescence of them with each other, and thereby answer the end of abolishing the cavity, without destroying any part of either tunic.

I made the experiment proposed by him, and found it sometimes successful, never hazardous or prejudicial, but by no means certainly efficacious, or to be depended upon. The cannula by its hardness and resistance, was a very unpleasant guest within the vaginal coat; and from its inflexibility, upon any unguarded motion of the patient, injured the testicle and gave very acute pain; and the tent and bougie, which I occasionally substituted in its place, although they did not give so much pain, were liable to a considerable degree of uncertainty.

Uncertainty and hazard are certainly very different things, and the latter much preferable to the former: not to have injured a man by an experiment, affords some degree of consolation under a disappointment; but yet when it is considered, that an operation and process of this kind is submitted to from choice, and not from necessity, if it fails of success, although no real harm be done either to the part, or to the constitution of the patient, both the loss of time and the confinement will become doubly irksome, as they will be found not only not to have answered the end proposed, but not have brought the patient at all nearer to a cure than

than he was before the attempts. The reflection is unpleasant to both parties.

Being from the effects both of the cannula and tent, satisfied that there was no kind of hazard in the introduction of a foreign body into the cavity of the tunica vaginalis, nor from its remaining there; and having many opportunities of meeting with this disease in St. Bartholomew's, I determined to try what a seton would do toward raising such a degree of inflammation as might occasion a coalition of the two membranes, and effect the purpose proposed by Professor Monro. * The success fully answered my expectation.

In my general treatise on the diseases of the testicle, I mentioned and recommended it, but as I could not be certain what a greater length of time might produce to make me change
my

* His words are, " Considering how readily contiguous inflamed parts grow together, and how many instances there are of people having a radical cure made of this hydrocele by inflammations coming on the part, it would seem no unreasonable practice to endeavour a concretion of the two coats of the testicle when they are brought contiguous, after letting out the water through the cannula of a trochar, by artfully raising a sufficient degree of inflammation.

" This to be sure must be done cautiously, and so that the surgeon can reasonably expect to be master of the inflammation; and therefore the application of all irritating medicines, the operation of which he could not immediately stop, or any single mechanical effort, the effect of which he could not be sure of, are not to be employed.

" Suppose the cannula of the trochar was to be left, by the extremity of it rubbing against the testicle, an inflammation might be artfully raised, the cause of which might be taken away as soon as the surgeon thought fit."

MEDICAL ESSAYS.

my opinion, I mentioned it with some degree of caution.

Since that time I have embraced every opportunity, both in the hospital and out, of practising it, and that under some improvements; and as I can now speak positively to its success, I thought it right to give it to the publick, who are always intitled to every benefit arising from the labours of every man whom they have honoured with any degree of confidence; and this as well on a principle of humanity as of gratitude.

What I have said of it in the general treatise is in the following words, Vol. 2, p. 40. " The point to be aimed at, is to excite such a degree of inflammation, both in the tunica vaginalis and tunica albuginea, as shall occasion a general and perfect cohesion between them; and this, if possible, without the production of slough or abscess: without the hazard of gangrene, and without that degree of symptomatic fever which now and then attend both the caustic and the incision; and which when they do happen, are so alarming both to patient and surgeon.

" These ends I have frequently obtained by the use of a seton.

" It is a method of cure mentioned by Aquapendens from Guido, and others before him, though their process was somewhat different from mine. I have several times tried it on subjects of very different ages, some of them more than fifty years old. It requires confinement to bed only for a few days, after which

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“ which the patient may lye upon a couch to
 “ the end of the attendance, which is gene-
 “ rally finished in about three weeks or a
 “ month at farthest, and during all that time
 “ no other process or regimen is necessary, than
 “ what an inflammation of the same part from
 “ any other cause (for example a hernia hu-
 “ moralis) would require.

“ The manner of performing it is as follows.
 “ Choose a time when the vaginal coat is mo-
 “ derately distended, and having pierced it
 “ with a trochar of tolerable size, draw off
 “ the water ; when that is done, introduce
 “ into the cannula a probe armed with a se-
 “ ton consisting of ten or twelve strings of
 “ candle-wick cotton ; pass the probe as high
 “ to the upper part of the vaginal coat as you
 “ can, and on the end of that probe make an
 “ incision of such size as to enable you to pull
 “ it out easily, together with a part of its annex-
 “ ed seton ; then cut off the probe, and tie the
 “ cotton very loosely, covering the orifices with
 “ pledgets. By the next day the seton will
 “ be found to have contracted such an adhe-
 “ sion to the tunica albuginea as would cause
 “ a great deal of pain to detach ; but this it is
 “ perfectly unnecessary to do, and it should
 “ be suffered to remain without molestation.
 “ In about forty-eight hours the scrotum and
 “ testicle begin to swell and inflame ; the patient
 “ should then lose some blood, and have a stool
 “ or two, and the whole tumefied part should
 “ be wrapped in a soft poultice, and suspended
 “ in a bag truss. The disease from this time
 “ bears

“ bears the appearance of a large hernia humoralis, and must be treated in the same manner, by fomentation, cataplasm, &c.

“ The adhesion of the seton to the albuginea generally continues firm, and I never meddle with, or move it, till it becomes perfectly loose, which it seldom does for the first fortnight, or until the inflammation is going and the tumor subsiding. By the time the seton becomes loose, the coalition of parts is universally and firmly accomplished. I then withdraw it, and heal the orifices with a superficial pledget, &c.”

This method was, as I said, in general very successful; but repeated trials furnished me with objections to some parts of it, and induced me to think such parts might be amended.

I found that cutting upon the end of the probe was troublesome, both from its smallness and from its flexibility, and also that it was sometimes difficult to keep it steady, for the same reasons, and that it always required the assistance of another person's hand besides that of the operator: a circumstance one would always wish to avoid when possible. I found also, sometimes, that the seton of candle-wick cotton did not pass so easily as I could wish; and by rubbing the tunica albuginea too rudely, gave more pain than I liked. The seton as made of cotton, adhered, in some instances, too long and too firmly. From the intimate connection of the parts of the wet cotton with each

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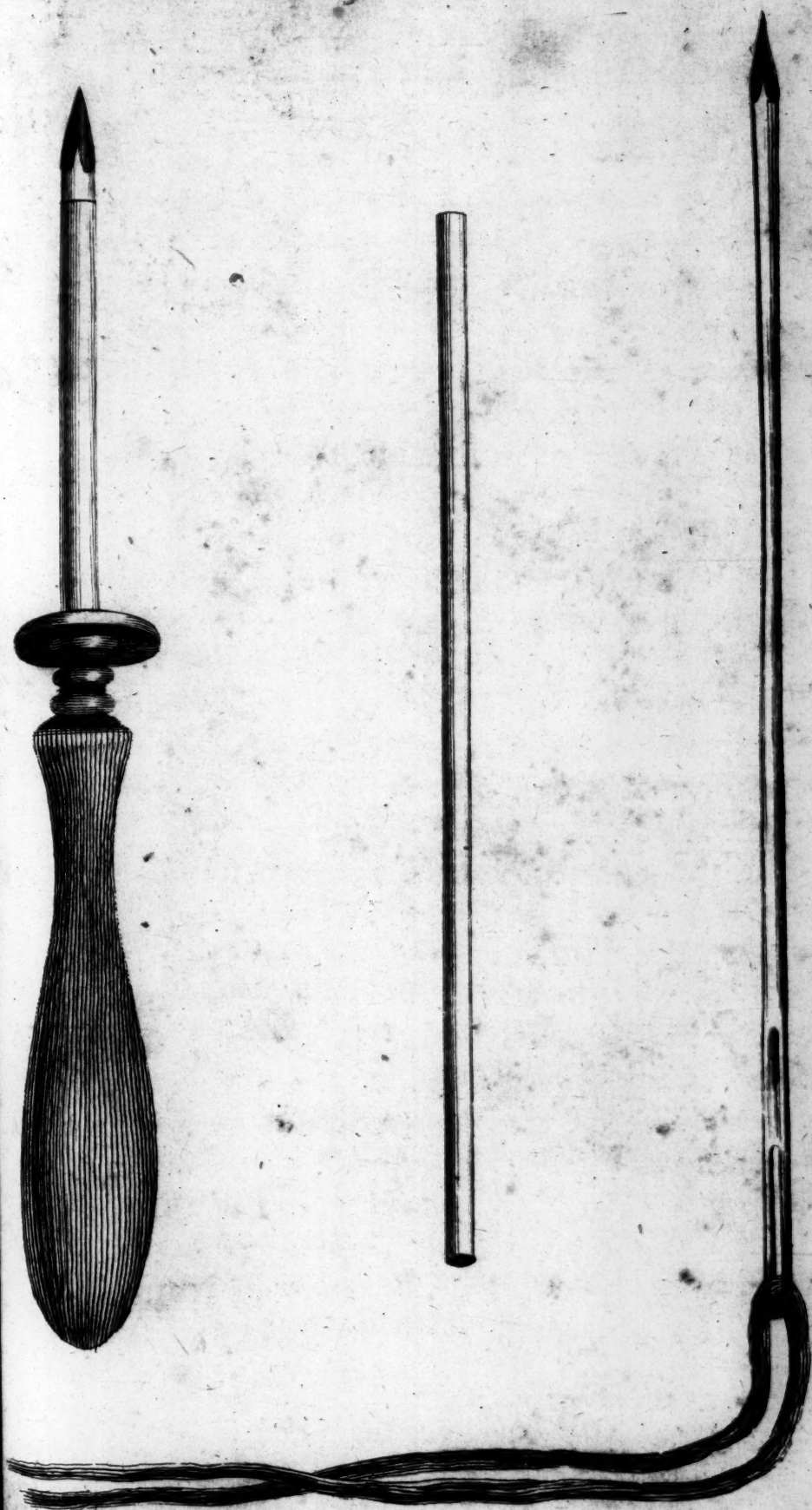
each other, it could never be brought away but entire; which, in some cases, occasioned an unnecessary waste of time. And what was still worse, in two instances it adhered so firmly, that I was obliged to make a small incision to get it away at all.

All these inconveniences and objections I have now obviated and removed.

The instruments I now make use of are in the annexed plate, and are,

A trochar, the diameter of whose cannula is very nearly, but not quite, one fourth of an inch. Another cannula, which I call the seton-cannula, which is made of silver, and is of such diameter as just easily to pass through the cannula of the trochar, its length five inches, and a probe of six inches one-half long, having at one extremity a fine steel trochar-point, and at the other an eye which carries the seton; which seton consists of just so much strong, coarse, white, sewing-silk as will without difficulty pass through the latter cannula but at the same time will fill it.

With the trochar the inferior and anterior part of the tumor is to be pierced as in common palliative tapping: as soon as the water is discharged, and the perforator withdrawn, the seton-cannula is to be passed through that of the trochar, until it reaches the upper part of the tunica vaginalis, and is to be felt in the very upper part of the scrotum. This done, the probe armed with its seton is to be conveyed through the latter cannula, the vaginal coat and integuments to be pierced by its point and the seton to be drawn through the cannula, until a sufficient quantity is brought out by the upper



per orifice. The two cannulæ are then to be withdrawn, and the operation is finished. It is executed in two or three seconds of time, and with little more pain than is felt in common tapping.

By this method every advantage which attended the former operation is obtained, and every inconvenience which it was liable to, is obviated and provided against.

The seton-cannula, by its firmness bears tight against the place where the seton should be brought out, the trochar point of the probe is kept from deviating by its confinement, and its point pierces through the skin immediately, and exactly in the place intended, while the seton by passing thro' the cannula is prevented from rubbing rudely over the testicle.

As soon as the operation is finished I put the patient into bed, and immediately give him twenty or twenty-five drops of tinctura thebaica, which I repeat or not, *pro re nata*.

About the third day the testicle and scrotum begin to inflame and swell, and to put on the appearance of a hernia humoralis, or the swelled testicle which now and then attends a clap; and requires the same and no other kind of treatment; that is, fomentation, poultice, a suspensory bag, a cool, temperate regimen, and an open belly.

By these means the inflammation is soon and easily appeased. As soon as this end is accomplished, I permit the patient to get out of bed and lie on a couch, or sit in a great chair with his legs up; and I generally give the cortex in some form or other twice or thrice a day.

The

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The soreness and tumefaction now diminish apace, and as soon as the parts are quite easy, which is generally about the tenth or twelfth day, I begin to withdraw the seton, taking out four, five, six, or seven threads of it at each dressing, which dressing consists of nothing more than a superficial pledget upon each of the orifices while they continue open, and a discutient cerate (such as the *ceratum saturnin.*) to cover the scrotum.

The discharge of matter from the orifices is small and trifling, no more than might be expected; the *tunica vaginalis* does not become sloughy, but is preserved intire; and the cure is accomplished, merely by the coalescence or cohesion of the *tunica vaginalis* with the *tunica albuginea*. An event, which from what has fallen within my observation, I am inclined to believe, is most frequently the consequence of a severe *hernia humoralis*.

In this circumstance, viz. the accomplishment of the cure, by adhesion of the two coats together without any destruction of parts, consists the material difference between the method of cure by seton, and that by caustic.

All the practitioners who make use of the latter allow, that it produces a slough of the whole *tunica vaginalis*; that it destroys the whole bag or cyst, and that it is used with intention so to do.

In the cure by seton no slough is produced, (at least I have never seen one) nor is the vaginal coat destroyed in any part of it; a firm cohesion

sion is made between the two membranes occasioned by the inflammation; and the cure is effected solely thereby.

I shall always most gladly embrace every opportunity to improve so noble and so really useful an art as surgery; but, at the same time, should be very sorry to have it supposed, that any partiality to my own opinion would make me misrepresent, or deviate from truth.

Since this pamphlet first appeared, Mr. ELSE has published a second edition of his account the cure by caustic.

In this he has recited two attempts by the seton, which were under the conduct of Mr. Martin, in St. Thomas's Hospital.

I make no doubt that the circumstances were as Mr. ELSE has related them; but I must take the liberty of saying, that although I have practised the method of cure by seton, on a very considerable number of people, both in the hospital of St. Bartholomew, and out of it, of all ages and in all circumstances, I have never yet met with that trouble, or those disagreeable symptoms which Mr. ELSE has related as happening to Mr. Martin's two patients; on contrary I am, from very frequently repeated experience, convinced, that the cure by seton is by much the least hazardous, painful, or fatiguing,

180 RADICAL CURE of the HYDROCELE. ing, as well as the most expeditious and cer- tain of any yet proposed.

* Although I am as much a friend to simplicity in chirurgic operations as any man can be, and think that whatever can be well done by means of one instrument, is most frequently better done than by means of several; yet in this instance, I cannot help thinking otherwise.

The intent of the seton cannula is to defend the tunica albuginea testis from the rude passage of the silk over it: from the pain and other disagreeable circumstances which I have seen attend the omission of it, I must again recommend its use, though it does add to the instrumental apparatus. From frequent and repeated experience I must also advise the using a skein of white silk instead of ribband or tape.

Whatever is used will necessarily contract some degree of adhesion to the testicle, during its inflamed state; and this adhesion will unavoidably create some little trouble and uneasiness whenever the seton is withdrawn; but this pain and trouble will necessarily be least, when the seton is composed of such materials as are capable of being taken away at different times instead of all at once.

When a seton of any kind is used for the purpose of making, or of continuing a drain of matter, it is right to move it daily, and frequently to shift it; but in this case, as the intention is different so should our conduct be: the intention is merely, by the residence of the seton, to excite such a slight degree of inflammation as shall occasion an adhesion of the tunica albuginea testis to the tunica vaginalis, and not a suppuration; the moving it daily, or even at all until the proper time of taking it quite away can do no good, and must, by exciting unnecessary pain, do harm.

I therefore must repeat my advice, to let it remain unmoved for a week or ten days, at the end of which time it will have accomplished its end, and then had better be removed than not.

Suppuration is not only not intended, but should, as much as it may be in our power, be guarded against.

A TREA-

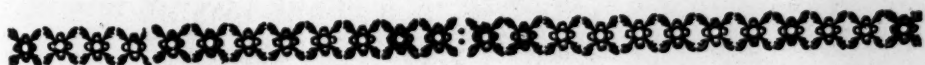


A

TREATISE

ON THE

FISTULA IN ANO.



VOL. II.

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TRIALS

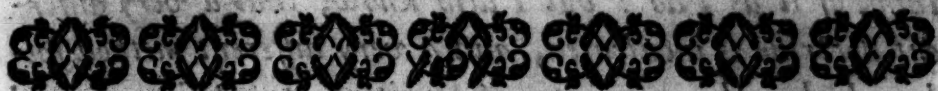
ON THE

TESTIMONY

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K

Vol. II



P R E F A C E.

I *T has been said, that when a man thinks that he can, by publishing his opinion, derive any benefit to his fellow creatures, he has no reason to be anxious about making an apology for such publication.*

This, within a certain limitation, is true; but, taken in its full extent, may be urged as an excuse for obtruding that on the world, which may not be worth its acceptance.

Possibly the following sheets may be thought to come within that predicament.

The only defence I have to make for them is, that from the most diligent and most frequent enquiry into the general method of treating the disease in question, I am convinced, that such method may be considerably improved; that is, may be rendered less painful, more expeditious, and more successful.

I should be very sorry to have it thought, that I meant, by this, to signify, that my opinion on this subject is different

rent from that of all my brethren : I know it is not ; I know that there are some gentlemen of the profession who think of it as I do : but I also know, that a very different doctrine is inculcated, and a very different method followed, by the majority of writers, practitioners, and teachers.

The number of those who have had frequent opportunities of seeing this kind of disease, is not large, compared to that of those, who are daily liable to be called to the care of it : the number of those who reflect on what they see, or read, and who take the liberty of thinking for themselves, is still smaller ; so that the precepts delivered by such as have obtained any degree of reputation, do almost necessarily become rules of practice to the multitude.

I have, on this occasion, carefully perused almost every writer of character on the subject ; and think, that I may venture to say, that they are all either defective, or erroneous : they either pass the disease over slightly, and without that regard which it certainly requires, and deserves ; or subject it to a method of cure, which is operose, painful, tedious, and unnecessarily productive of future evil.

The term Cutting for a Fistula, conveys to a patient a terrible idea ; and this terror is not a little increased by his incapacity of seeing the part diseased. The majority of writers have greatly increased, rather than lessened, this dread : and, as the operation is (under their directions) sometimes performed, it is, indeed, a very severe one : a great part of this severity appears to me to be unnecessary ; and I cannot help thinking, that a more serious reflection on the parts concerned in the disease, and on its different
nature

nature in different states and circumstances, would lead us to a more rational method of treating it, and to a more easy and expeditious cure.

To point such method out, is the intention of the following tract.

In the execution of it, I have sometimes found myself under a necessity of controverting the opinions of some gentlemen of deserved eminence: if I have done this with decency and good manners, no apology is necessary. The honour of our art, and the moral characters of its professors suffer, whenever we pay so blind deference to any one, as prevents us from using our own judgments, and from declaring freely the result of our enquiries or experiments. Truth, as Lord Bacon has said, is not the child of authority, but of time. And were we to allow ourselves to suppose, (let the subject be what it may, provided it be liable to experiment) that nothing more, or new, could be taught, it is pretty clear, that nothing more or new would be learnt.

I therefore hope, that the free dom which I have used, either in relating the opinions, or in objecting to the practice of others, will not be attributed to an invidious disposition to find fault; but merely to a desire of being serviceable to mankind in that way, in which, I flatter myself, that I may be, in some degree capable; and of improving, as much as in me lies, the very necessary, and universally useful Science of SURGERY.

It is a great pleasure to me to have this book published, and I hope it will be of some service to the public. I have written it with great care, and I trust it will be found to contain much valuable information.

The object of this book is to give a full and complete account of the history of the United States, from the first discovery of the continent to the present time. It is written in a plain and simple style, and I hope it will be accessible to all classes of readers. I have endeavored to give a full and complete account of the history of the United States, from the first discovery of the continent to the present time. I have endeavored to give a full and complete account of the history of the United States, from the first discovery of the continent to the present time.

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cases tedious and painful, which might have
been cured early and expeditiously: and con-
sequently has been a great source of disfigure-
ment, and unnecessary trouble, or mark-
ing on the face, or other parts of the body.
A small orifice or outlet from a large cavity

OF THE

FISTULA IN ANO.

S E C T. I.

CLEAR and precise definitions of diseases, and the application of such names to them as are expressive of their true and real nature, are of more consequence than they are generally imagined to be: untrue or imperfect ones occasion false ideas; and false ideas are generally followed by erroneous practice.

It would be no difficult matter to produce instances of disorders, whose treatment has, for a great length of time, been accommodated more to the titles imposed upon them, than to their true and real character: among these, my present subject is a most glaring proof.

The custom of giving the appellation of Fistula to every impostumation, and to every collection of matter formed near to the Anus, has,

has, by conveying a false notion of them, been productive of such methods of treating them, as (though, perhaps, suited to such idea) are diametrically opposite to those which ought to be pursued: such as have often rendered those cases tedious and painful, which might have been cured easily and expeditiously: and consequently such as have brought disgrace on our art, and unnecessary trouble on mankind.

A small orifice or outlet from a large or deep cavity, discharging a thin gleet, or sanies, made a considerable part of the idea, which our ancestors had of a fistulous sore, wherever seated. With the term fistulous, they always connected a notion of callosity: and, therefore, whenever they found such a kind of opening yielding such sort of discharge, and attended with any degree of induration, they called the complaint a *Fistula*. Imagining this callosity to be a diseased alteration made in the very structure of the parts; they had no conception that it could be cured by any means, but by removal with a cutting instrument, or by destruction with escharotics: and, therefore, they immediately attacked it with knife or caustic, in order to accomplish one of these ends: and very terrible work (by their own accounts) they often made, before they did accomplish it.

Several of the abovementioned circumstances do frequently attend collections of matter near to the rectum; and therefore for want of proper attention to the true nature of the case, the custom of calling them all *Fistulæ* has generally

generally prevailed, though without any foundation in truth or nature.

That abscesses formed near the fundament, do sometimes, from bad habits, from extreme neglect, or from gross mistreatment, become fistulous, is certain; but the majority of them have not, at first, any one character or mark of a true fistula; nor can, without the most supine neglect on the side of the patient, or the most ignorant mismanagement on the part of the surgeon, degenerate, or be converted into one.

Collections of matter from inflammation (wherever formed) if they be not opened in time, and in a proper manner, do often burst: the hole through which the matter finds vent, is generally small, and not often situated in the most convenient, or most dependant, part of the tumor; it therefore is unfit for the discharge of all the contents of the abscess: and, instead of closing, contracts itself to a smaller size: and, becoming hard at its edges, continues to drain off what is furnished by the undigested sides of the cavity.

This is often the case in the most muscular, or fleshy parts of the body, where the cellular and adipose membrane does not abound; but is more particularly so in the neighbourhood of the anus, where that membrane is large in quantity, well stocked with fat, and not compressed by the action of any large or strong muscles.

Why critical defluxions and abscesses are frequently formed in this part, is so obvious to every

every one, who considers its natural structure, that it must be quite unnecessary to enter into an explanation of it: I shall therefore only observe, that when it becomes the seat of such kind of defluxion, it can make little or no resistance; but immediately swells, and becomes hard to a considerable extent: and although impostumation is very frequently the consequence, yet the induration extending itself a good way beyond the bounds of the abscess, the first suppuration is by no means equal to the dissolution of such hardness; especially, if instead of being opened properly, the skin has been suffered to burst.

The smallness of this accidental orifice; the hardness of its edges; its being found to be the outlet from a deep cavity; the daily discharge of a thin, gleety, discoloured kind of matter; and the induration of the parts round about, have all contributed to raise, and confirm the idea of a true fistula.

To this idea, the general treatment of these cases has therefore been made to accord: upon this, has been built the prevailing doctrine of free excision, or as free destruction, without any regard to the original production of the complaint, its particular seat, its date, or any other attendant circumstances; and without examining, whether it would not admit a more easy, and a more expeditious method of cure. In short, this notion, that all sinuses near the rectum are necessarily fistulous, has occasioned the prescription of such a manner of treating them, from their very first appearance, as they can hardly ever stand in need of at any time; and a mere ill-founded supposition, that

that the induration of the parts about, may be owing to a diseased callosity, is urged as a reason for using them with more severity than even such state would require.

S E C T. II.

WHOEVER would obtain a true notion of the disease in question, must consider it under all the forms in which it makes its appearance. These, which are many, and various, (both with regard to aspect, situation, and symptoms) are, what shew the different nature of the complaint in different states; and are the circumstances, which ought to regulate a surgeon's conduct in the care of it.

Sometimes the attack is made with symptoms of high inflammation; with pain, fever, rigor, &c. and the abscess proves truly critical; that is, it becomes a solution of the fever.

In this case, a part of the buttock near to the anus is considerably swollen, and has a large circumscribed hardness. In a short time, the middle of this hardness becomes red, and inflamed; and in the center of it matter is formed.

This (in the language of our ancestors) is called in general a Phlegmon; but when it appears in this particular part, a Phyma.

The pain is sometimes great; the fever high, the tumor large, and exquisitely tender: but however disagreeable the appearances may have been;

been; or however high the symptoms may have risen, before suppuration; yet, when that end is fairly and fully accomplished, the patient generally becomes easy and cool; and the matter formed under such circumstances, though it may be plentiful, yet is good.

On the other hand, the external parts, after much pain, attended with fever, sickness, &c. are sometimes attacked with considerable inflammation, but without any of that circumscribed hardness, which characterized the preceding tumor; instead of which the inflammation is extended largely, and the skin wears an erysipelatous kind of an appearance. In this, the disease is more superficial; the quantity of matter small, and the cellular membrane sloughy to a considerable extent.

Sometimes, instead of either of the preceding appearances, there is formed in this part, what the French call *une suppuration gangreneuse*; in which the cellular and adipose membrane is affected in the same manner as it is in the disease, called a Carbuncle.

In this case, the skin is of a dusky red, or purple kind of colour; and, although harder than when in a natural state, yet it has, by no means that degree of tension or resistance, which it has either in the phlegmon, or in the erysipelas.

The patient has generally, at first, a hard, full, jarring pulse, with great thirst, and very fatiguing restlessness. If the progress of the disease be not stopped or the patient relieved by medicine, the pulse soon changes into an unequal, low, faltering
ing

ing one; and the strength and the spirits sink in such manner, as to imply great and immediately impending mischief. The matter formed under the skin, so altered, is small in quantity, and bad in quality; and the adipose membrane is gangrenous, and sloughy throughout the extent of the discoloration. This generally happens to persons, whose habit is either naturally bad, or rendered so by intemperance.

In each of these different affections, the whole malady is often confined to the skin and cellular membrane underneath it; and no other symptoms attend, than the usual general ones; or such as arise from the formation of matter or sloughs in the part immediately affected. But it also often happens, that, added to these, the patient is made unhappy by complaints arising from an influence, which such mischief has on parts in the neighbourhood of the disease, such as the urinary bladder, the vagina, the urethra, the hæmorrhoidal vessels, and the rectum; producing retention of urine, strangury, dysury, bearing down, tenesmus, piles, diarrhœa, or obstinate costiveness: which complaints are sometimes so pressing, as to claim all our attention. On the other hand, large quantities of matter, and deep sloughs are sometimes formed, and great devastation committed on the parts about the rectum, with little or no previous pain, tumor, or inflammation.

Sometimes the disease makes its first appearance in an induration of the skin, near to the verge of the anus; but without pain or alteration of color; which hardness gradually softens and suppurates: the matter when let out, in this case, is small in
quantity,

quantity, good in quality ; and the sore is superficial, clean, and well-conditioned. On the contrary, it now and then happens, that although the pain is but little, and the inflammation apparently slight ; yet the matter is large in quantity, bad in quality, extremely offensive, and proceeds from a deep, crude, hollow, which bears an ill-natured aspect.

The place also where the abscess points, and where the matter, if let alone, would burst its way out, is various, and uncertain. Sometimes it is in the buttock, at a distance from the anus ; at other times near its verge, or in the perineum : and this discharge is made sometimes from one orifice only, sometimes from several. In some cases, there is not only an opening through the skin externally, but another through the intestine into its cavity : in others, there is only one orifice, and that either external, or internal.

Sometimes the matter is formed at a considerable distance from the rectum, which is not even laid bare by it ; at others, it is laid bare only, and not perforated : it is also sometimes not only denuded, but pierced ; and that in more places than one. The original seat of the mischief is, in some cases, high up in the pelvis, near the lower vertebræ of the loins, and the os sacrum ; and the matter comes from parts so diseased, and so out of reach, that the case is hopeless from the first. These discharges are to some persons salutary, and prove solutions of general diseases, which have long infested the habit : to others they often
prove

prove fatal, by exhausting the small remains of strength. If the disease has its foundation in the lues venerea (which is not a very uncommon case) it frequently communicates with the urethra, and neck of the bladder, producing great disturbance and misery to the patient. And sometimes it happens, that fistulous openings, near the anus, give discharge to a sanies, proceeding from a cancerous state of some of the parts within the pelvis.

Whoever attends to this variety of states and circumstances, must be convinced, that no one particular method can suit them all ; but that in this, as in many other cases, the surgeon's conduct must be varied occasionally, and adapted to the exigencies of each individual.

S E C T. III.

IT very seldom happens, when inflammatory defluxions are made on the cellular membrane surrounding the intestine rectum, that it is in our power to prevent the formation of matter ; nor if it was, would it often be right so to do ; as these abscesses seldom happen to any body, to whom they are not, at least, a temporary relief.

All consideration, therefore, of that kind, is generally out of the question : and our business, if called to it at the beginning, must be to moderate the symptoms ; to forward the sup-
puration ;

puration ; when the matter is formed, to let it out ; and to treat the fore in such manner, as shall be most likely to produce a speedy and lasting cure.

When there are no symptoms which require particular attention, and all that we have to do is to assist the maturation of the tumor, a soft poultice is the best application. When the disease is fairly of the phlegmonoid kind, the thinner the skin is suffered to become, before the abscess be opened, the better ; as the induration of the parts about will thereby be the more dissolved ; and, consequently, there will be the less to do after such opening has been made. This kind of tumor is generally found in people of full, sanguine habits ; and who, therefore, if the pain be great, and the fever high, will bear evacuation, both by phlebotomy, and gentle cathartics : which is not often the case of those, who are said to be of bilious constitutions ; in whom the inflammation is of larger extent, and in which the skin wears the yellowish tint of the erysipelas ; persons of such kind of habit, and in such circumstances, being in general seldom capable of bearing large evacuation.

The observation is general, with regard to erysipelatous inflammations in any part of the body, and is by no means confined to this.

I may, possibly, be censured, for stepping out of my way to mention it ; but it is a truth of so much importance to many, and I have seen such melancholy instances from its being not known

known, or not attended to, that my intention must plead my excuse.

This kind of inflammation (I mean the erysipelatous) generally makes its attack with nausea, vomiting, slight rigor, heat, thirst, and restlessness.

The quickness of pulse, and heat of skin, are indications for some degree of evacuation, and indeed sometimes render it requisite ; but it is a very prevailing opinion with many practitioners, that these evacuations should be freely made, and frequently repeated : in short, that the cure of this kind of inflammation is safely to be effected by them ; which is so far from being true, that the practice has proved fatal to many. If, for instance, blood be drawn off in such quantity, as that the patient's pulse sinks suddenly, or if his strength be considerably reduced by purging, it is no very uncommon thing for the inflammation to leave the part first affected, and for such complaints to come on immediately, as soon prove destructive, and afford no opportunity to repair the mischief, which the evacuation has produced.

When the inflammation is of this kind, the quantity of matter formed is small, compared to the size and extent of the tumor ; the disease is rather a sloughy, putrid state of the cellular membrane, than an impostumation ; and, therefore, the sooner it is opened, the better : if we wait for the matter to make a point, we shall wait for what will not happen ; at least not till after a considerable length of time :

during which, the disease in the membrane will extend itself, and consequently, the cavity of the sinus, or abscess, be thereby greatly increased.

When, instead of either of the preceding appearances, the skin wears a dusky, purplish red colour; has a doughy, unresisting kind of feel, and is very little sensible: when these circumstances are joined with an unequal, faltering kind of pulse, irregular shiverings, a great failure of strength and spirits, and inclination to dose, the case is formidable, and the event generally fatal.

The habit, in these circumstances, is always bad; sometimes from nature, but much more frequently from gluttony and intemperance. What assistance art can lend, must be administered speedily; every minute is of consequence; and if the disease be not stopped, the patient will sink. Here is no need for evacuation of any kind; recourse must be immediately had to medical assistance; the part affected should be frequently fomented with hot spirituous fomentations; large and deep incision should be made into the diseased part; and the applications made to it should be of the warmest, most antiseptic kind.

This also is a general kind of observation; and equally applicable to the same sort of disease in any part of the body. Our ancestors have thought fit to call it in some a Carbuncle, and in others by other names; but it is (wherever seated) really and truly, a gangrene of the cellular, and adipose membrane; it always

ways implies great degeneracy of habit, and, most commonly, ends ill.

Strangury, disury, and even total retention of urine, are no very uncommon attendants upon abscesses forming in the neighbourhood of the rectum and bladder; more especially, if the seat of them be near the neck of the latter.

They sometimes continue from the first attack of the inflammation, until the matter is formed, and has made its way outward; and sometimes last a few hours only.

The two former most commonly are easily relieved by the loss of blood, and the use of gum arabic, with nitre, &c. But the last (the total retention) is, (while it continues) both fatiguing and alarming.----They, who have not often seen this case, generally have immediate recourse to the catheter; and for this they plead the authority of precept: but the practice is so essentially wrong, and I have seen such terrible consequences from it, that I cannot help entering my protest against it.

The neck of the bladder, from its vicinity to the parts where the inflammation is seated, and from its being involved in the same common membrane, does certainly participate, in some degree, of the said inflammation. This will, in some measure, account for the complaint; but whoever considers the extremely irritable state of the parts composing that part of the urethra, (if I may be allowed so to call it) and will, at the same time, reflect on the amazing and well-known effects of irritation,

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will be convinced that the principal part of this complaint arises from that cause ; and that the disease is, strictly speaking, spasmodic. The manner, in which an attack of this kind is generally made ; the very little distention which the bladder often suffers ; the small quantity of urine sometimes contained in it, even when the symptoms are most pressing ; and the most certain, as well as safe, method of relieving it ; all tend to strengthen such opinion.*

But whether we attribute the evil to inflammation or to spasmodic irritation, whatever can, in any degree, contribute to the exasperation of either, must be palpably and manifestly wrong. The violent passage of the catheter through the neck of the bladder (for violent in such circumstances it must be) can never be right. I will not say, that it never succeeds ; but I will say, that it can hardly ever be proper to make the attempt.

If the instrument be successfully introduced, it must either be withdrawn as soon as the bladder is emptied ; or it must be left in it : if the former be done, the same cause of retention remaining, the same effect returns ; the same pain and violence must again be submitted to, under (most likely) increased difficulties. On the other hand,
if

* Great and acute as the pain is in the neck of the bladder, and about the pubes, in a retention of urine, it is not greater, nor more acute, than is sometimes felt in the same parts, by those in whose bladder no urine is to be found, and in whom the catheter may be passed with very little trouble or resistance. This complaint, which I have more than two or three times seen, is truly spasmodic ; and, accordingly, always gives way to opium, more especially if used in the form of glyster.

if the catheter be left in the bladder, it will often, while its neck is in this state, occasion such disturbance, that the remedy (as it is called) will prove an exasperation of the disease, and add to the evil it is designed to alleviate: nor is this all; for the resistance which the parts, while in this state, make, is sometimes so great, that if any violence be used, the instrument will make for itself a new route in the neighbouring parts, and lay the foundation of such mischief, as frequently baffles all our art.---An accident, which I have known happen to those, whose judgment and dexterity have never been doubted.

The true, safe and rational method of relieving this complaint is, by evacuation and anodyne relaxation: this not only produces immediate ease, but does, at the same time, serve another very material purpose; which is that of maturing the abscess. Loss of blood is necessary; the quantity to be determined by the strength and state of the patient: the intestines should also be emptied, if there be time for so doing, by a gentle cathartic; but the most effectual relief will be from the warm bath, or semicupium, the application of bladders with hot water to the pubes and perineum, and, above all other remedies, the injection of glysters, consisting of warm water, oil, and opium. There may have been cases, which have resisted and baffled this method of treatment; but I have never met with them.

On the other hand: I have seen so great and permanent mischief, from the premature use of catheter, that it would have been better for the patient to have sunk under the first evil, than to have

have lived to experience that variety of misery, to which all they are subject, who are afflicted with a diseased or injured neck of the bladder.

A painful tenesmus is no uncommon attendant upon an inflammatory defluxion on the parts about the rectum. The frequent use of the muscles, whose office it is to expel from the gut whatever is troublesome to it, and by whose action, the parts, which make the seat of the disease, must be continually compressed, make this while it lasts, a very disagreeable complaint.

If a dose of rhubarb, joined with a warm anodyne, such as the conf. mithrid. or such like, does not remove it, the injection of thin starch and opium, or tinct. thebaic. is almost infallible.

The bearing down, as it is called, in females, as it proceeds, in this case, from the same kind of cause (viz. irritation) admits relief from the same means as the tenesmus.

In some habits, an obstinate costiveness attends this kind of inflammation, accompanied, not unfrequently, with a painful distention, and enlargement of the hæmorrhoidal vessels, both internally and externally. While a quantity of hard fæces are detained within the large intestines, the whole habit must be disordered; and the symptomatic fever, which necessarily accompanies the formation of matter, must be considerably heightened. And while the vessels surrounding the rectum (which are large and numerous) are distended, all the ills proceeding from pressure, inflammation, and irritation, must be increased. This is too obvious to need any explanation, and as it must be as obvious, that phlebotomy, laxative glysters, and

and a low, cool regimen, must be the remedies ; while a soft cataplasm applied externally serves to relax and mollify the swollen, indurated piles, at the same time that it hastens the suppuration.

These are, I think, the most material of the complaints, which attend inflammatory defluxions and formations of matter about the anus and rectum. They are indeed most of them symptomatic, or accessory to the original disease ; but they are frequently of such immediate consequence to the ease, and sometimes even to the safety of the person afflicted, that they require all our attention. Whoever neglects or mistreats them will cause his patient to suffer a great deal of unnecessary pain, fatigue, and even hazard : whoever attends to and treats them properly, will find that, by relieving and appeasing these accidental ills, he will assist the cure of the principal complaint, and gain time, instead of losing it.

S E C T. IV.

LET us now consider this disease, when the first symptoms attending the inflammation are gone off ; and matter is either formed and collected, in such manner as to be fit for a surgeon to give discharge to it : or, (that opportunity having been avoided or neglected,) it has burst through the parts containing it, and has made its own way out.

The

The different states and circumstances produced either by the collection of this matter, or by the manner in which it has made its escape, will necessarily occasion a difference in the manner of treating the case; and may, for method-sake, as well as for the more perfectly understanding the true nature of the disease, be reduced to two general heads; viz.

1. Those, in which the intestine is not at all interested; and,
2. Those in which it is either laid bare, or perforated.

Let us first suppose the matter to be fairly formed; to have made its point, as it is called; and to be fit to be let out.

Where such point is, that is, where the skin is most thin, and the fluctuation most palpable, there the opening, most certainly, ought to be made.

Some of our predecessors, either from a fear, which almost necessarily accompanies the want of anatomical knowledge; or from an awkwardness attending the disuse of a cutting instrument; adopted the method of opening these (as well as most other abscesses) by caustic.

With all due deference to authority, I will venture to say, that it is in general wrong; and particularly so in the present case.

It often gives unnecessary pain; and it produces a loss of substance, and a kind of cicatrix, which is not only unseemly, but frequently proves a lasting inconvenience.

Some of the patrons of potential fire, do indeed give a specious kind of reason for its use; viz.

viz. that it makes a more large and free opening for the discharge ; and that, by the time the eschar is separated, the hollow underneath is generally more than half filled up.

In a few, (very few) particular cases, where the destruction of glandular parts may become necessary, after the eschar is thrown off, (as in the case of venereal bubos) there may be some force in this argument ; and caustics may be found useful ; but in the present case, and in most others, in which they are freely and frequently applied, they appear to me to be highly improper ; as they necessarily occasion a loss of parts, and a kind of eschar ; which is, in general, an indelible blemish, to say no worse. And with regard to the particular circumstance of the hollow being filled almost up, by the time the eschar is separated, if the surgeon will dress an abscess, opened by incision, in the same easy superficial manner, he does one opened by caustic, he will find the consequence to be the same. But, I know not why, a notion has long prevailed, that an abscess opened by a knife, must be immediately crammed, and stuffed with dressings, while that on which a caustic has been applied, must be let alone, until the eschar casts off. Let the one be treated as the other is, (and as they both ought to be) and the event will be found to be alike in each : excepting this material difference in favour of the knife, that it will not necessarily occasion any destruction of parts, loss of substance, nor any deformity which is at all comparable with what must follow the use of the caustic.

In

In making the opening, the knife, or lancet should be passed in deep enough to reach the fluid; and, when it is in, the incision should be continued upward and downward; * in such manner as to divide all the skin covering the mater. By these means, the contents of the abscess will be discharged at once; future lodgment of matter will be prevented; convenient room will be made for the application of proper dressings; and there will be no necessity for making the incision in different directions, or for removing any part of the skin composing the verge of the anus.

Notwithstanding that all these collections of matter are generally called by the name of *Fistulæ*, and are all supposed to affect the *intestinum rectum*, yet it is very certain, that the seat of the abscess, (the place where the matter is formed) is, sometimes, at such distance from the gut, that it is not at all interested by it; and that none of these cases either are, or can be originally *fistulæ*.

In this state of the disease, we have no more necessarily to do with the intestine, than if it was not there; the case is to be considered merely as an abscess in the cellular membrane; which will require (in the usual phrase) to be digested, incarned, and (if practicable) healed, without meddling with the rectum in any manner.

As

* When I say upward and downward, I suppose the patient to stand on his feet, with his legs and thighs straight, and his body leaning forward over a table, or a bed; which posture gives the fairest view of the parts; and puts them into the best position for the operation as well as for the operator.

As this is a matter of some importance to the patient, it is worth a little consideration.

Suppose an abscess formed in the neighbourhood of the rectum, which, after a certain degree of swelling and inflammation, ripens, or comes to a point, somewhere near to the verge of the anus. Suppose also a large and convenient opening to have been made by a simple incision: the contents of the abscess to have been thereby discharged; and a sore or cavity produced, which is, perhaps, considerable in size: this cavity is to be filled up in such manner, as to produce a firm and lasting cure.

The frequent use of the term filling up, and the generally-received opinion, that the induration of the parts about is a diseased callosity, appear to me to have been the two principal sources of error and misconduct in these cases.

Wherever matter is formed in consequence of inflammation, it always leaves, upon being let out, a proportional hollow, and some degree of induration. The former of these is of different size, according to the quantity of matter; and the latter depends both on the degree of previous inflammation, and the more or less perfect suppuration of the abscess.

The generally-received opinion, with regard to these two circumstances (hollow and hardness) is, that the former is caused entirely by loss of substance; and the latter (as I have already observed) by diseased alteration in the structure of the parts.

The

The consequence of which opinion is, that as soon as the matter is discharged, the cavity is filled and distended, in order to procure a gradual regeneration of flesh; and the dressings, with which it is so filled, are most commonly of the escharotic kind, intended for the dissolution of hardness.

The practice is a necessary consequence of the theory. Whoever supposes diseased callosity, and great loss of substance, will necessarily think himself obliged to destroy the former; and to prevent the cavity, formed by the latter, from filling up too hastily. On the other hand, he, who considers this matter as it really is; that is, he, who regards the cavity of the abscess as being principally the effect of the gradual distraction and separation of its sides, with very little loss of substance, compared with the size of the said cavity; and who looks upon the induration round about, as nothing more than a circumstance which necessarily accompanies every inflammation in membranous parts, more especially in those which tend to suppuration; will, upon the smallest reflection, perceive, that the dressings applied to such cavity ought to be so small in quantity, as to permit nature to accomplish that end, which she always aims at, as soon as the matter is let out; (I mean, the approach of the sides of the cavity toward each other) and that such small quantity of dressings ought to consist of materials proper only to encourage easy and gradual suppuration.

This

This is a fact so obvious to common sense, that it must appear to every one who will coolly and impartially consider it.

What is the part in which the disease is seated? and what are the alterations which such disease produces? The part is mere cellular membrane; and the alteration is obstruction and inflammation, ending in the formation of matter. But do these create any new body? do not the sides of the abscess still remain cellular and adipose membrane, only inflamed, thickened, hardened, and rendered purulent? can such alteration require any thing more toward restoring the parts to a natural state, than a free suppuration from the parts so altered? or can it make extirpation or destruction necessary? Most certainly it cannot. How then is suppuration to be produced and maintained? Not by thrusting in such applications as by their quantity distend, and by their quality irritate and destroy; but by dressing lightly, and easily, with such as appease, relax, and soften.

The fact is capable of experiment; and every man who will make it, that is, who will try the different methods, and attend to the consequences, must be able to determine it; unless blinded by prejudice, or influenced by a worse motive.

A moment's attention to the conduct of nature, when left to herself and not interrupted by art, will, perhaps, set this matter in a clearer light.

When an abscess of this kind is opened by a surgeon, the cavity is found proportioned to the contents; and, consequently, if the quantity of matter be large, the hollow is considerable. If this hollow be immediately filled with dressings (of any kind,) the sides of it will be kept from approaching

approaching toward each other ; or may even be farther separated. But if this cavity be not filled, or have little or no dressings of any kind introduced into it, the sides immediately collapse ; and coming nearer and nearer, do, in a very short space of time, convert a large hollow into a small sinus. And this is also constantly the case, when the matter, instead of being let out by an artificial opening, escapes through one made by the bursting of the containing parts.

It is indeed true, that this sinus will not always (and particularly in the disease I am now speaking of) become perfectly close, and heal ; but the aim and conduct of nature is not, therefore, the less evident ; nor the hint which art ought to borrow from her, less palpable.

In this, as in most other cases, where there are large sores, or considerable cavities, a great deal will depend on the patient's habit, and the care that is taken of it : if that be good, or if it be properly corrected, the surgeon will have very little trouble in his choice of dressings ; all that he will have to do will be, to take care that they do not offend either in quantity or quality ; but if the habit be bad, or injudiciously treated, he may use the whole farrago of externals, and only waste his own and his patient's time.

In short all these cases are, at first, mere abscesses ; the consequences of inflammation, and require no other treatment than what would be proper in the same kind of case in all other parts. Some few of them are so circumstanced, with regard to the intestine, that it is quite unnecessary to meddle with it at all : but whether that be the case,

case, or not; whether the division of the rectum become a necessary part in the cure, or not; they most certainly, do not deserve the name of fistulæ; nor require that sort of treatment which fistulæ are said, and thought, to stand in need of: though by being, from their very first appearance, supposed to be such, they are frequently, by mismanagement, rendered truly fistulous.

By this, (that is, by light, easy treatment) large abscesses, formed in the neighbourhood of the rectum, will sometimes be cured, without any necessity occurring of meddling with the said gut. But it much more frequently happens, that the intestine, although it may not have been pierced, or eroded by the matter, has yet been so stripped, or denuded, that no consolidation of the sinus can be obtained, but by a division; that is by laying the two cavities, viz. that of the abscess, and that of the intestine, into one.

The necessity of doing this, may, in some cases, be known by the surgeon, at first; that is, when he opens the abscess, he may find the intestine so bare, and in such state, as plainly to prove, that he will not be able to effect a cure without the operation: in other instances, he may have reason, at first, to flatter himself with success, and be disappointed.

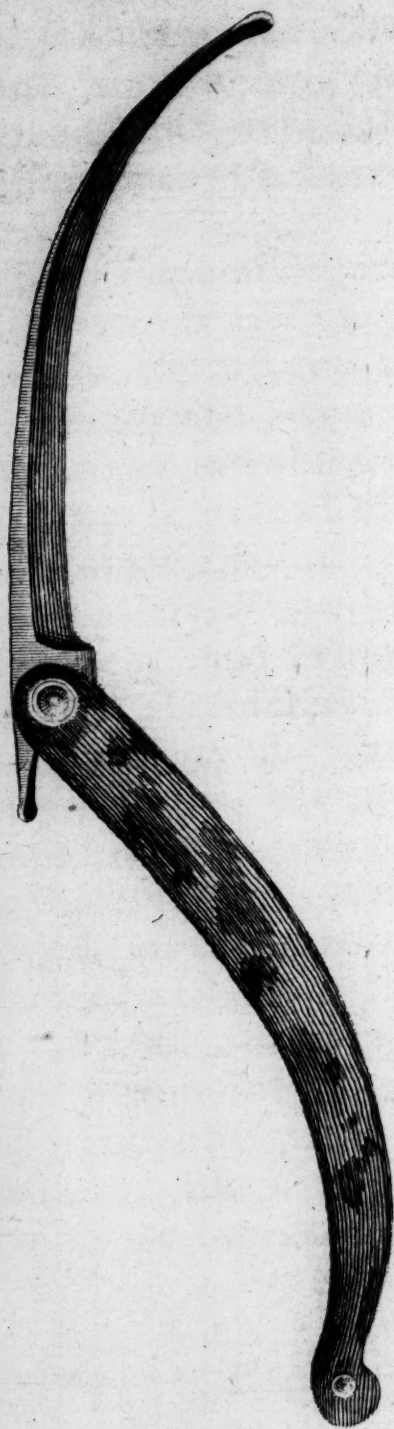
When the former is the case; when the gut is found to be in such state, that there is no reason to expect a cure, without its being divided; that operation had better (on many accounts) be performed, at the time the abscess is first opened, than be deferred to a future one. For if it be done in the manner, in
which,

which, I will venture to say, that it always may, it will add so little to the pain, which the patient must feel by opening the abscess, that he will seldom be able to distinguish the one from the other, either with regard to time or sensation: whereas, if it be deferred, he must either be in continual expectation of a second cutting, or feel one, at a time when he does not expect it.

The intention, in this operation, is to divide the intestine rectum, from the verge of the anus, up as high as the top of the hollow in which the matter was formed; thereby to lay the two cavities of the gut and abscess into one; and, by means of an open, instead of a hollow, or sinuous fore, to obtain a firm and lasting cure.

Ingenious, mechanical, and whimsical people * have often busied themselves, in inventing instruments for this purpose: the fyringotomy, the cultellus falcatus, the probe-razor, &c. have all at times been in use; scissars also of various kinds, both straight and crooked, have been employed in this operation: the three first may be made to serve the purpose very well; but to the last, (the scissars) there is in this, as well as in almost every operation, in which they are frequently used, a palpable objection, viz. that, by pinching at the same time that they cut, they occasion a great deal
of

* The late Mr. Freeke invented an instrument for this purpose; but it was upon trial, found to cut the operator's finger, with so much more certainty than the patient's intestine, that it has long been laid aside.



K

of unnecessary pain. They are, I know, in great use with many, who, if they were deprived of their probe-scissars, would think themselves incapacitated from doing business; but they are, upon all occasions where mere division is required, a very bad instrument; they may assist an awkward or an unsteady hand, but are more fit for a farrier, than for a surgeon.

In all chirurgic operations, the instrument made use of cannot be too simple, nor too keen; and, if possible, should never be out of the sight, or the direction of the finger of the operator; and, whenever it is, (as must sometimes necessarily be the case) it is liable to some degree of uncertainty. Scissars introduced into the rectum are always in this predicament; and are, therefore, (as well as on account of their pinching quality) bad.

The curved, probe-pointed knife, with a narrow blade, I have always found to be the most useful and handy instrument of any. This introduced into the sinus, while the surgeon's fore-finger is in the intestine, will enable him to divide all that can ever require division; and that with less pain to the patient, with more facility to the operator, as well as with more certainty and expedition than any other instrument whatever. If there be no opening in the intestine, the smallest degree of force will thrust the point of the knife through, and thereby make one: if there be one already, the same point will find and pass through it. In either case, it will be received by the

finger in ano ; will thereby be prevented from deviating ; and being brought out by the said finger, must necessarily divide all that is between the edge of the knife, and the verge of the anus : that is, must by one simple incision, (which is made in the smallest space of time imaginable) lay the two cavities of the sinus, and of the intestine, into one.

Authors make a very formal distinction between those cases in which the intestine is pierced by the matter, and those in which it is not ; but although this distinction may be useful, when the different states of the disease are to be described, yet in practice, when the operation of dividing the gut becomes necessary, such distinction is of no consequence at all ; it makes no alteration in the degree, kind, or quantity of pain, which the patient is to feel ; the force required to push the knife through the tender gut, is next to none ; and, when its point is in the cavity, the cases are exactly similar.

This is the only operation, which (in the circumstances under our present consideration) ever can be necessary : and this appears to me, to be the safest, easiest, and most expeditious method of performing it.

I know, that it is contrary to the opinion and practice of many ; who think that the removal of some part, both of the intestine and of the verge of the anus, is necessary in these cases ; but long and repeated experience has convinced me of the contrary : and I shall, in the

the next section, have occasion to speak more particularly to that point.

Immediately after the operation, a soft dossil of fine lint should be introduced (from the rectum) between the divided lips of the incision; as well to repress any slight hæmorrhage, as to prevent the immediate re-union of the said lips; and the rest of the sore should be lightly dressed with the same. This first dressing should be permitted to continue, until a beginning suppuration renders it loose enough to come away easily; and all the future ones should be as light, soft, and easy as possible; consisting only of such materials, as are likely to promote kindly and gradual suppuration. The sides of the abscess are hard; the incision must necessarily, for a few days, be inflamed; and the discharge will, for some time, be discoloured and gleety: this induration, and this sort of discharge, are often mistaken for signs of diseased callosity, and undiscovered sinuses, upon which presumptions, escharotics are freely applied, and diligent search is made for new hollows; the former of these most commonly increase both the hardness and the gleet; and by the latter new sinuses are sometimes really produced. These occasion a repetition of escharotics, and, perhaps, of incisions; by which means, cases, which, at first, and in their own nature, were simple and easy of cure, are rendered complex and tedious.

That this is the truth, without exaggeration, is well known to many; and whoever will look over the writings of some of our immediate pre-

decessors, or even of some of our contemporaries, will find, that, immediately after pinching and snipping the gut with scissars, we are directed to fill the incisions with lint; and, after having distended the cavity by such means, to dress in future, with such medicines, as, though used under the specious names of digestives, detergents, &c. do really inflame and irritate the parts to which they are applied, and retard instead of encouraging, a kindly suppuration.

Among these, the mercurius præcipitatus ruber stands principal: this seems to have been the great external specific of most of our immediate predecessors, and to have been used by them, for the very different purposes of destruction and restoration: with this, either in dry powder, or mixed with unguent, the tents, pledgits, &c. with which they dressed these sores, were spread or embued; with this they dressed the recently-divided lips of the wound in the intestine; and with this they filled the whole cavity of the abscess.

That the same practice still too much prevails, they who please may be convinced. *

I would beg leave to ask any patron of this method of dressing, what he would say to a man, who shall order a large tent, well charged with præcipitate, to be thrust up the undivided, unwounded rectum of a person, who from any cause whatever, had an inflammatory defluxion on the hæmorrhoidal vessels and inside of the fid gut?
Would

* Mr. De la Faye says—"Si les chairs s'elevent trop, on les consumera avec la pierre infernale;" and in many books of reputation, the butyrum antimonii, the trochisci e minio, the pulvis angelicus, &c. are prescribed for frequent use.

Would he not say, that such tent would prove a fatiguing, inflaming suppository? and would he not be right in saying so? Is then the rectum rendered less sensible, and less irritable, by being wounded? Or, can that very application, which proves a painful stimulus to a gut not divided, become an easy digestive to one that is? If any man thinks that it will, I would advise him to make the experiment on himself; and I would then appeal to the testimony of his own unprejudiced sensations.

In short, to quit reasoning, and to speak to fact only: In the great number of these cases, which must have been in St. Bartholomew's Hospital, within these ten or twelve years, I do aver, that I have not met with one, in the circumstances before described, that has not been cured by mere simple division, together with light easy dressings: and that I have not, in all that time, used, for this purpose, a single grain of præcipitate, or of any other escharotic.

Why is it, that we hear so much of miracles performed by the paste of one quack? and by the injections, oils, and balsams of others? when we all know, that there is nothing specific for the cure of this disease in their compositions: and, when we also know that the venders of these remedies are people, whose ignorance in matters of physic and surgery is below all notice.

That these cures are much more frequently talked of than made, I well know; but that some few people, who have been long and unsuccessfully treated by surgeons, have got either well or better, under the very negligent management of
some

some of these quacks, is an incontestible truth ; and very strange it is, that we do not see why.

Fas est et ab hoste doceri :----

The truth is : that, while we are looking for what these people do, we (if I may be allowed the phrase) overlook what they do not do. It is true, we cannot find any specific quality in the strange jumble of ingredients which they put into their internal remedies ; nor any particularly-sanative one in their injections, balsams, &c. and therefore, are surprized at even the few instances of their success ; but still over-look the one single circumstance, by which the good is produced.

It is, and ever must be, a first principle in quackery, to disapprove and condemn whatever has been done before, be it right, or be it wrong : and it is also necessary for quacks, to avoid all connection with those who are called Regular Practitioners ; as well in order to have the sole management of the patient, as to avoid inspection.

For these reasons, they always order all former dressings to be immediately thrown aside, and disused ; and, not having in general ingenuity enough even to seem to apply others, with any degree of judgment or dexterity, they make use of a mere superficial plaster, ointment, or injection : that is, without intending any such thing, upon an honest, or a rational principle, they, for want of knowing what to do properly, leave the conduct of the sore to nature ; who, when the impediment of dressings,

ings (which often offend either in quantity or quality) are removed, will do much more than her too officious assistants believe.

That the very few cures, which we have heard so much of, are produced in this manner, I am convinced; and so I am, that many of those, which are thought, by several practitioners, to have been brought about by a multiplicity of dressings crammed in tight; and endeavoured to be kept so, by all the caution of compress and bandage, are very frequently effected by the constant and generally successful endeavours of nature, to thrust them forth again; or, at least, so to displace them, that she gradually gets opportunities of doing her own business, in spite of the impediments of art. The business of good surgery is to assist nature; but she will, sometimes, get the better even of the worst.

*Usque recurret,
Et mala perrumpet furtim fastidia victrix.*

S E C T. V.

IN the preceding Section, I have supposed the matter of the abscess to have been formed, and collected, but still to have been contained within the cavity, until let out from thence by an incision.

I am now to consider it, as having made its own way out without the help of art.

This

This state of the disease is also subject to some variety of appearance ; and these different appearances have produced, not only a multiplicity of appellations, but a groundless supposition also, of a variety of essentially different circumstances.

When a discharge of the matter by incision is too long delayed, or neglected, it makes its own way out, by bursting the external part somewhere near to the fundament ; or by eroding, and making a hole through the intestine into its cavity ; or sometimes by both. In either case, the discharge is made sometimes by one orifice only, and sometimes by more. Those in which the matter has made its escape by one or more openings through the skin only, are called blind, external fistulæ ; those, in which the discharge has been made into the cavity of the intestine, without any orifice in the skin, are named blind internal ; and those, which have an opening both through the skin, and into the gut, are called complete fistulæ.

This is the language of all writers, as I have already observed : and thus, all these cases are deemed fistulous, when hardly any of them ever are so ; and none of them necessarily. They are still mere abscesses, which are burst without the help of art ; and, if taken proper and timely care of will require no such treatment, as a true fistula may possibly stand in need of.

The most frequent of all are what are called the blind, external ; and the complete. The method whereby each of these states may be known
is

is, by introducing a probe into the sinus by the orifice in the skin, while the fore-finger is within the rectum: this will give the examiner an opportunity of knowing exactly the true state of the case, with all its circumstances.

Whether the case be, what is called a complete fistula, or not; that is, whether there be an opening in the skin only, or one there, and another in the intestine, the appearance to the eye is much the same. Upon discharge of the matter, the external swelling subsides, and the inflamed colour of the skin disappears; the orifice, which at first was sloughy and foul, after a day or two are past, becomes clean, and contracts in size; but the discharge by fretting the parts about, renders the patient still uneasy.

As this kind of opening seldom proves sufficient for a cure, (though it sometimes does) the induration, in some degree, remains; and if the orifice happens not to be a depending one, some part of the matter lodges, and is discharged by intervals, or may be pressed out by the fingers of an examiner. The disease in this state, is not very painful; but it is troublesome, nasty, and offensive; the continual discharge of a thin kind of fluid from it, creates heat, and causes excoriation in the parts about; it daubs the linen of the patient; and is, at times very foetid; the orifice also sometimes contracts so, as not to be sufficient for the discharge; and the lodgment of the matter then occasions fresh disturbance.

The means of cure proposed, and practised, by our ancestors, were three, viz. caustic, ligature and incision.

The

The intention, in each of these, is the same, viz. to form one cavity of the sinus and intestine, by laying the former into the latter.

Fear of hæmorrhage, in making a large division of parts, and a design to destroy callosity, gave rise to the use of caustics, for this purpose ; by the introduction of them in different forms and manners into the sinus, that part of the intestine which divides its cavity from that of the abscess, is intended to be destroyed : and, thereby, the proposed end of making one cavity of the two, is to be accomplished ; while, at the same time, the supposed callosity is to be wasted. For this purpose, some of the most fatiguing and painful escharotics have been prescribed and used : the pulvis angelicus, the lapis infernalis, and troches and pastes made with sublimate, arsenic, &c. But the method is so cruel, so tedious and so inexpert, that, I hope, it is, by this time, totally out of use : it was founded in error, tends only to mischief ; and I will not waste the reader's time, in saying any thing more about it. *

The

* Doctor Daniel Turner, who practised surgery within these few years, used this method in its full extent. In his works may be found, an account of his forming tents of the trochisci e minio ; and thrusting them into the sinus, there to remain till they had produced a sufficient eschar. In the same writer are accounts of strong probe-scissars, made to cut through parts of a considerable thickness ; and where the external orifice was at a great distance from the anus : and of an iron scoop, made (to use the Doctor's own words) like a cheese-monger's taster, to be thrust up the rectum, and assist in the division of it. What ideas this gentleman had of the disease, or of human sensation I cannot imagine. The same gentleman speaking of the use of this iron scoop, tells us, that when he used it on one particular patient, the man thought that the Doctor was only thrusting up the dressings. It is no difficult matter

The terror which a cutting instrument necessarily carries with it, the fear of a flux of blood from some considerable vessels, together with a strange, nonsensical opinion, that a gradual division of the parts was followed by a more sound cure, than an immediate one by cutting, produced the coarse, unhandy method by ligature. The manner of using it was this: A probe, or needle, (according to the complete or incomplete state of the supposed fistula) armed with a strong ligature, was introduced, either naked or in a cannula by the orifice in the buttock, and brought out at the anus, by the operator's finger: when that was done, the two ends of the said ligature were tied together, in such manner, and at such repeated times, as, by degrees, to cut through all that was between its loop and its knot; that is, all that part of the intestine, which was next to the sinus.

Among writers on this subject will be found very formal directions, about the proper time of the year for performing this operation; as well as concerning the proper materials wherewith to make the ligature. But as the whole operation is, on every principle of ease, expedition, safety, or certainty, unfit for practice, it would be an abuse of the reader's patience to dwell any longer upon it. *

The

matter to conceive what kind of dressings this man must have been accustomed to, who could not distinguish between the application of them, and the thrusting up an iron scoope.

* See Celsus, whose account of the method by ligature has been followed by most of the writers since. " *In has demisso specillo, ad ultimum ejus caput incidi cutis debet; dein novo foramine*
" *specillum*

The third method is that by incision.

I have already given my opinion, on what appears to me to be the best and most proper method of dividing the intestine, in the case of a collection of matter formed juxta anum.

The intention to be aimed at by incision, in the present case, is exactly the same, and, I think) ought to be executed, in the same manner. I never saw, that any other kind of operation was necessary; I have not, for many years, performed any other; and I do not recollect a single instance, in which it has failed to produce a cure, in such cases as were curable by any means.

If, therefore, I intended to give my own opinion merely on this subject, I should say, the same division of the intestine, and with the same instrument, is all that is required; and referring my reader back to the preceding section, should give him no farther trouble on this head. But as I find my sentiments in this matter are somewhat different from those of many, I must beg leave to be indulged in the use of a few words.

I have said, that in whatever manner, or with whatever instrument, the intestine be divided, the intention is the same: viz. to lay the cavity of the abscess into that of the gut; and,

“ specillum educi lino sequente; quod in aliam ejus partem, ob id
 “ ipsum perforatam, conjectum sit: ibi linum apprehendendum,
 “ ligandumque cum altero capite est; ut laxè cutem, quæ super
 “ fistulam est, teneat: idque linum debet esse crudum, & duplex,
 “ triplexve, sic tortum ut unitas in eo facta sit. Interim autem li-
 “ cet negotia agere, ambulare, lavare, cibum capere, perinde at-
 “ que sanissimo,” &c.

and, thereby to convert a hollow finous sore, into an open one; preventing by the same means, the future lodgment of matter, and giving room for the application of proper dressings.

The two cases (a collection of matter, and a sinus) seem to me to require exactly the same treatment; and I have never found it fail of being equally successful in both; that is, I never found, that the matter, having found its own way out, made any other operation on the gut, except the mere simple division, at all necessary.

But it is said, and that by authors to whom great regard is due, that this is not all that is requisite, especially in the present circumstances; that this will not produce a cure, or assure success; that mere division of the intestine is not sufficient; and that, unless we cut out, remove, and extirpate a portion both of the said intestine, and the skin constituting what is called the verge of the anus, a firm and lasting cure will not follow. This is the doctrine of writers of eminence, and the practice of a large body of surgeons.

When I have mentioned the names of Cheselden, De la Faye, and Le Dran, I need not cite any others of less note. The first of these was a gentleman, whose reputation in his profession was great; the two latter are in as high character now in France. The influence of these upon their readers must be considerable; and, therefore, it becomes a matter of
the

the more importance, that their doctrine be just and defensible.

The methods which these gentlemen have proposed, and which have been by many adopted, are somewhat different from each other ; but do all tend to the same purpose ; are all calculated to prevent imaginary evils ; and are all productive of real ones.

Mr. Cheselden, in the last edition of his Anatomy, says,---“ The true fistula runs between
“ the muscular and inner coat of the rectum :
“ it is cured by opening it the whole length
“ into the cavity of the gut : but it is yet better,
“ if it can be done, to extirpate all that is
“ fistulous and schirrhous ; for that is a sure
“ way, to make one operation perfect the
“ cure.”

In his Observations, published at the end of Mr. Gataker's translation of Le Dran's surgery, Mr. Cheselden describes a method of his own inventing, by the introduction of one blade of a pair of polypus-forceps into the sinus, and of the other into the rectum. By which means, a certain portion of the intestine is held fast between the chops of the instrument, in order to be cut out with the scissars.

After having given an explanation of a plate, designed to represent the forceps introduced in such a manner as to hold the piece of intestine fast, he adds,---“ I formerly cut out a pyramidal piece in the manner here described ; but I
“ find this way with the forceps much more
“ convenient, and more easy to be executed.”

How

How much this method may be preferable to that which Mr. Cheselden used to practise, I know not; but I will venture to say, that this more easy method is horridly painful, is operose, and absolutely unnecessary towards obtaining a cure.

The wound, that is, the orifice of the sinus in the buttock, is, by Mr. Cheselden's direction, to be first dilated with a sponge tent; then one of the blades of a pair of large polypus-forceps is to be thrust up the sinus, while the other within the intestine, pinches it between them; and then, this piece so pinched is to be snipped out by the repeated attacks of a pair of scissars. A very tedious, and very painful operation this must necessarily be; and by Mr. Cheselden's own account, not always successful: for, although he does say,—"The operation being thus performed, I have never found wanting a second cutting:" yet, he immediately adds,—"If, after this operation, there is still an internal discharge into the gut, it may be an useful issue; and continue the benefit which nature designed by the disease.* We should also be very careful not to perform it, when the patient is troubled

* This is a method of making an issue, to which few people would (I believe) chuse to submit: especially, if they consider, that they might have enjoyed all the benefit of it without any operation at all; merely by leaving their disease to nature. The same gentleman, speaking of the intestine rectum, tells us, that he once applied a caustic length-ways on the inside of the inverted gut, to cure a prolapsus; and adds, that it proved successful. This I am almost sorry for; lest Mr. Cheselden's authority should tempt any other person to make the same attempt.

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“bled with the piles; for I have known one,
“in that case, bleed to death.”

It would be no difficult matter to make great objections to this method of operating, even if the one thing intended by it was necessary; I mean the extirpation of a portion of the rectum: this end might certainly be obtained by easier means: but, as that is not the case, as such extirpation appears to me to be totally unnecessary, I shall not enter into it.

Mr. De la Faye, a practitioner and writer of eminence in France, and a gentleman to whom the chirurgic world is much indebted, is a warm patron of the practice of cutting away both a part of the intestine, and of the skin composing the verge of the anus. After the external incision, necessary for letting out the matter, has been made, he says,---“Si les pus
“a fait un progres considerable du cote de la
“fesse, on y fera une autre incision, qui tombera perpendiculairement sur l’incision longitudinale; on coupera les angles formez
“par ces incisions, pour rendre l’exterieur de
“la playe plus large que le fond, & pour panser plus aisement.” ‘If the matter has extended itself considerably toward the buttock, another incision should be made, in such manner as to cross the former; the angles formed by which incisions should be cut away: as well to render the external part of the wound larger than the internal, as to give room for the more convenient application of dressings to the sore.’

If

If Mr. De la Faye had ever, in his own person, had the misfortune to experience the inconvenience arising from the loss of skin near to the fundament ; or had he attended to that which it produces to those, who either from choice, or necessity, ride or walk much, I am inclined to believe he would have been more sparing of it.

For the first three or four days, this kind of incision does, certainly, render the applications of dressings more convenient ; because the wound is thereby considerably enlarged ; but, as soon as digestion has softened the edges of the single perpendicular incision, that difference ceases ; and the dressings may be applied with equal facility to the one as to the other.

After this period is past, the difference between the two is, indeed, much more considerable ; the cutting away the angles, adding not a little to the length of time requisite for a cure ; rendering the sore much larger, and more troublesome ; and subjecting the patient, very often, to great inconvenience, arising from the kind of cicatrix which it necessarily produces.

Mr. De la Faye, after having described the manner of passing the probe, or the fulcated director, in order to make a simple, longitudinal division of the intestine, adds,---“ On ne
 “ se contente pas aujourd'hui de couper la fistule entre les deux extrémités du stilet ;
 “ on fait une incision qui renferme dans son
 “ circuit ces deux extrémités : et par le moyen de laquelle, en les tirant en même temps,

“ on emporte toute la fistule, qui se trouve
 “ comme embrochée dans l'anse formée par
 “ cette instrument : * on fait ensuite a la par-
 “ tie inferieure de la playe, une incision, qui
 “ sert comme de gouttiere à la suppuration.”

‘ The present practitioners do not content
 ‘ themselves with merely dividing the sinus ;
 ‘ but making use of the probe as a kind of
 ‘ loop, they pull the parts towards them ; and
 ‘ then, by a free and almost circular incision,
 ‘ cut out the whole fistula ; after which, they
 ‘ make such an incision in the lower part, as
 ‘ may

* It might be supposed, from the manner in which this is delivered, that the method was a modern invention : whereas it is on the contrary, a very old one. Guido's description of it is as follows.

“ Penetrantes fistulæ (secundum Rhazin) non sanantur, nisi
 “ cum ligatione, et extractione cum falce.

“ Modus incisionis cum falce est, quod extrahatur cum chordu-
 “ la immissa extra quantum possibile erit intestinum comprehen-
 “ sum per ipsam chordulam ; et post intromittendum positum ab
 “ Albucasi bene scindens ; totum illud, quod comprehensum
 “ est cum chordulâ scindatur ; ita, quod chordula expediatur.”

GUIDO.

So also Brunus having described the method by ligature, goes on to that by incision.

“ Operatio autem secundi modi est, ut non stringatur spacus
 “ [the ligature] sicut narratum est ad incidendas carnes, sed ligen-
 “ tur tantum ipsius extremitates simul, et ut sit iste spacus fortior et
 “ grossior illo qui carnes incidit : deinde extende spacum cum unâ
 “ manuum tuarum versus exteriora, et cum alterâ manu tuâ incide
 “ illas carnes quæ sunt inter illas duas extremitates spaci, cum in-
 “ strumento curvæ extremitatis.”

This is exactly, what is now by some called, Cutting upon the Wire ; and I have seen in the hands of a very ingenious gentleman, a single instrument, very capable of executing all this purpose ; that is, of cutting out ten times as much as ever can be necessary.

The same account is to be found in Lanfranc, Rogerius, and most of the old writers ; who, in this, as in most other instances, have done little more than merely copy each other.

‘ may best serve the purpose of a free discharge
‘ of matter.’

This method, as far as regards the mere operation, is, certainly, preferable to that with the forceps and scissars; but it produces the same destruction of the parts, and the same future inconveniencies; like that, it is built upon a supposition, that such a removal of parts is necessary toward a cure; and, therefore, like that, stands upon a supposition which is not true.

The same gentleman, in another paragraph admits, that this method of operating is not proper in certain circumstances: (which circumstances cannot possibly render the disease easier of cure) and in such case, advises the mere longitudinal section of the gut.---“ Ne-
“ anmoins, le canal fistuleux pourroit être si
“ profond, ou le trou extérieur de la fistule
“ dans un lieu de la fesse si éloigné du fonde-
“ ment, qu’ en faisant l’opération de la ma-
“ nière qu’ on vient de décrire, on emporte-
“ roit une trop grande portion de la substance.
“ En ce cas on ouvre sur une fonde canelée la
“ fistule dans sa longueur, ” &c. ‘ Nevertheless,
‘ the fistulous hollow may be so deep, or the
‘ external orifice in the buttock at such di-
‘ stance from the anus, that, if the operation
‘ be performed in the manner just described,
‘ it would occasion too large a loss of substance.
‘ In this case, the sinus must be opened length-
‘ ways, by means of a grooved director.’ Mr.
De la Faye does not, indeed, say, in express
terms, that this longitudinal division will be

sufficient for a cure ; but I will venture to say for him, that I know, from repeated experience, that it will. The observation, therefore, which this gentleman has made, concerning the loss of substance, is not only just and true in itself ; but it is also an observation, which, if properly attended to, will lead to a truth, which he does not seem to have been sufficiently apprized of ; which is, that every operation of this sort, (that is, every extirpation of parts,) is unnecessary, and therefore wrong. Large hollows, in which considerable quantities of matter have been formed ; whose extent, with regard to the intestine, is deep ; and whose orifice is in the buttock, at a distance from the anus, have always more induration about them, and discharge a larger quantity of gleet, than those which are smaller, more shallow, and thinner ; and whose matter has burst its way out, by an opening near to the fundament. If the former then are curable, by a mere longitudinal division of the intestine, without excision, which Mr. De la Faye, by his prescription, in some measure allows ; (and which is a truth beyond contradiction or contest) surely extirpation must be unnecessary in the latter. It can hardly be supposed, that nature will be able to do more in cases attended with increased difficulties and impediments, than in those where every circumstance is more favourable, every hindrance less. And yet, whoever cuts away a portion of the intestine in the latter, and omitting, or not performing, such operation in the former,

former, finds that they will do well without it, must reason in that manner, and shut his eyes against conviction.

Mr. De la Faye, is indeed, sensible of the ill consequences which such treatment produces, and has endeavoured to guard against them as well as he can; but, whoever has been so unfortunate, as to have been so treated, knows, that all these precautions are, in general, ineffectual: his words are,---“ *Lorsqu'on a coupé dans l'opération on une portion considérable du bord de l'anüs, & que les chairs commencent a remplir le vuide, il faut mettre dans l'ouverture de cette partie une tente, un peu courte, qui en empechant le retrecissement lui conserve son diametre.*”---
 ‘ When a considerable portion of the verge of the anus has been cut away in the operation, and new flesh begins to fill up the void space, a short tent should be introduced into the part, in order to hinder the fundament from contracting in its diameter;’---but which it will often do, in spite of all the tents in the world.

Mr. Le Dran, a writer and practitioner of considerable figure in Paris, and whose works have been translated into English by Mr. Gataker, is very particular with regard to this disease, and the method of treating it; and is also an advocate for this excising scheme even more than Mr. De la Faye.

This gentleman uses the term fistula, without any regard to the date of the disease, or any attending circumstances, except the common and almost necessary appearances, when an abscess of this kind has been suffered to burst, viz. a small orifice,

orifice, some degree of induration, and a discharge of fæcal matter : all which are circumstances, that necessarily accompany every abscess formed in the neighbourhood of, and piercing, the rectum : and this, at the very first hour, full as much as at any time after. So that, according to this manner of using the term, an abscess so circumstanced, and a fistula, are synonymous : which, I apprehend cannot be, without confounding together two things materially and essentially, different from each other. He says,---“ Je vois
 “ un petit trou a coté de l’anus, je sens des cal-
 “ losités au tour, et je vois sortir par ce trou une
 “ assez grande quantité de pus ; je conclus que
 “ c’est une fistule qui peut-etre interesse l’intestin
 “ rectum. Je vois sortir par ce trou un peu de
 “ matiere stercorale delayée ; ou bien le malade
 “ me dit, qu’il en sorte quelquefois ; je ne doute
 “ plus que le boyau ne soit percé ; et je dis que
 “ c’est un fistule complete.”---“ When I see a
 “ small orifice by the side of the anus, and perceive
 “ a hardness round about it, and find that it dis-
 “ charges a large quantity of matter, I conclude,
 “ that it is a fistula, which, most probably, af-
 “ fects the rectum. When I find something
 “ like fæces, discharged from this orifice, or mix-
 “ ed with what is discharged from it ; or the pa-
 “ tient informs me, that such kind of discharge
 “ is made ; I call the disease a complete fistula.”

This is, undoubtedly, the general custom ; notwithstanding which, the disease, in the state Mr. Le Dran has described it, may have no one true characteristic of a fistula ; nor require any of that treatment which is said to be necessary and proper
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in such case. A matter of great consequence to the patient.

In the operative part of the treatment of the disease, Mr. Le Dran warmly espouses the free removal, or extirpation of parts.---“ S’il ne l’est
 “ que d’une coté, il faut emporter ce qui est
 “ denué ; certain que si l’on le laisse, la playe re-
 “ stera fistuleuse ; et qui si l’on se contente de
 “ le fendre, les deux lambeaux flottans dans la
 “ playe rendront les pansemens tres difficiles, et
 “ meme la playe fistuleuse.”---“ If the disease be
 ‘ on one side only, all that part of the intestine,
 ‘ which is laid bare by the matter, ought to be
 ‘ cut away ; because, it is certain, that if such
 ‘ part be left in the wound, it will become fistu-
 ‘ lous ; and that, if we only make a simple divi-
 ‘ sion, the divided lips will hang loose and float-
 ‘ ing in the wound ; will render the application
 ‘ of dressings difficult, and make the sore fis-
 ‘ tulous.’

These are Mr. Le Dran’s words and sentiments : and this the method of practice, which is taught, and followed by the majority.

That some small part of this process may be necessary in the true, old, callous, fistulous sore, I do not deny ; (though not even then, in any degree equal to the above direction) but that the whole of it is absolutely unnecessary in the recent abscess, I can, from repeated experience, venture to affirm : that mere division of the naked intestine (if such division be dressed properly) will not render a sinus fistulous, which was not so before, is a truth as clear as any in Euclid ; and, indeed, it is
 to

to me matter of wonder, how such opinion could ever be embraced. The division of the intestine, by laying the cavity of the sinus open, destroys or removes the principal circumstance which can make such a case resemble a fistula; by converting a hollow sinous ulcer into an open one: and with regard to the other characteristic, induration, certain it is, that if the knife does not find the parts hard it cannot possibly make them so; on the contrary, it puts them under a necessity of undergoing such a degree of suppuration, as, if properly managed; will prove the cure of that very induration.

Mr. Le Dran says, " That the lips of the wound " will hang floating; will render the dressings " difficult, and the sore fistulous." I think I understand what Mr. Le Dran means: the tumid lips of the recently-made incision, will, certainly be a hindrance to the cramming in a quantity of dressings; and such attempts will, as certainly, increase the tumefaction and hardness: and, if persisted in, with the help of a little escharotic, may bid fair for producing a callous sore: but all this lies at the door of the surgeon, and not of the case: all this is unnecessary, improper, and pernicious. I cannot, under such treatment as I would call good surgery, conceive the tumefaction, and inflamed state of the lips of the divided gut to remain more than a few days; during which time, it must be the business of art to appease, relax, and produce suppuration; which if properly executed, will infallibly prevent all tendency towards a fistulous sore, instead of producing one.

That

That the lips of the wound in the rectum will not separate from each other, in such manner as to admit a large quantity of lint; and that the membranous structure of the part will render such lips large, and subject to inflammation, until some degree of suppuration comes on, is beyond all doubt; but neither of these are reasons for extirpation: for the inflammation will be full as high where a piece is cut out, as where the part is merely divided, and all the symptoms of pain and uneasiness full as great, if not greater: and with regard to the impracticability of putting in a quantity of dressing, I repeat, that it is not at all necessary; but that, on the contrary, it is wrong, and tends only to mischief. A doffel or two of fine lint should, immediately after the incision is made, be placed between the divided lips, by passing them from the cavity of the rectum, laterally into the cavity of what before such division was the sinus: these should not be removed, until either the beginning suppuration, or the necessary action of the gut in going to stool, throws them out; when their place should be supplied with others of equal size, imbued with an easy soft digestive.

If the patient be in health, the lips of this wound, like those in all other membranous parts, after they have been crude, tumid, and inflamed, and have for a few days, discharged a thin, discoloured kind of gleet, will begin to suppurate: if such suppuration be by proper, that is, by soft, gentle treatment, encouraged, not only the tumefaction and inflammatory hardness brought on by
the

the incision, will soon subside and disappear, but also all the induration which attended the sinus before it was laid open.

On the other hand, if the patient's habit be bad, and no such inflammatory tumefaction succeed to the incision ; but, instead of it, the lips of the wound are soft, flabby, and inclining to be livid, the case has undoubtedly, an unpromising appearance ; but the remedy is not surgical : removal of parts will not remove, or amend this state of the fore, or at all lessen the hazard arising from it : it may, indeed render the introduction of dressings somewhat more easy ; but it neither will, nor can, make such dressings at all more effectual, or more conducive to the one end which ought to be pursued.

In such case, the remedy must be an internal one : and whoever depends upon externals, will give his patient much unnecessary trouble, and only waste his time.

The truth is, this doctrine of the necessity of cutting out a portion of the intestine, (though it is as old, or, perhaps, older than Celsus*) is almost a necessary consequence of the manner in which these sores, (upon a supposition of their being fistulous) almost always have been and do still continue to be, generally treated--- I mean the custom of cramming them full of lint ; and of charging that lint with medicines, which,

* ‘ In hæc genera demisso specillo, duabus lineis incidenda cutis est, ut media inter eas habenula tenuis admodum injiciatur, ne protinus ora coeant, sitque locus aliquis linimentis, quæ quam paucissima superinjicienda sunt, omniaque eodem modo facienda, quæ in abscessibus posita sunt.’
CELSUS.

which, though used under more gentle appellations, are really escharotics. Upon this plan, I am willing to allow, that the lips of the divided intestine will be in the way ; and prove a considerable impediment in the introduction of such dressings ; and I will also allow, that by means of such medicines, the whole wound will be irritated, inflamed, and hardened ; and so far wear the appearance of being fistulous, as neither to yield good matter, nor be disposed to heal ; at least, not till nature has got the better of the surgeon.

What Mr. Le Dran says, in another paragraph of the same tract, may serve to strengthen what I have asserted.---“ S’il est denué des
 “ deux cotés, il faut pour le conserver, faire à
 “ l’autre fesse une contre-ouverture, pres de là,
 “ & la faire assez longue pour pouvoir panser
 “ commodement ; puis écouter ce que la nature
 “ fera pour lui.”---‘ If the gut be denuded
 ‘ on both sides, a counter-opening should be
 ‘ made on the other side, long enough to permit,
 ‘ conveniently, the application of dressings ;
 ‘ and then we should wait, and see what nature
 ‘ will do toward assisting the patient.’

A very important piece of advice this ; worth all the directions for the extirpation of parts ; and which, if timely and duly attended to, will, generally, render all such directions quite unnecessary.

It is, indeed, somewhat remarkable, that the same gentleman should give the above very excellent advice ; and, almost in the same breath, add what follows.---“ S’il est denué exacte-
 “ ment

“ ment dans toute sa circonference, & que son
 “ depouillement ne s'étend pas plus haut que
 “ les releveurs de l'anus, il faut emporter tout
 “ ce qui est dénué.”---“ If the intestine be bar-
 “ ed by the matter all round, and this denuda-
 “ tion does not extend above the levatores ani,
 “ all that part which is so bared should be ex-
 “ tirpated.” That is, the whole verge of the
 anus: all that part which is so formed by na-
 ture, as, by its relaxation, to permit the largest
 and most solid stool to pass out; and, by its
 constriction, to detain and keep in, for a while,
 the most fluid, sharp, and stimulating one; all
 that part, which, when destroyed or removed,
 not only never can be renewed, but never can
 have its place supplied, nor its office properly
 executed by what must succeed to it: surely it
 may, with great justice, be said, that the last
 state of a man in these circumstances is worse
 than the first; and that his remedy proves a
 most afflicting disease.*

Prejudice

* In the Memoirs of the French Academy, is a case of this kind, related by Mr. Faget. The patient had an abscess on each side of the rectum; which, before Mr. Faget saw it, had been opened without meddling with the gut.

The two abscesses communicated by a hollow or sinus under the os coccygis; the depth in all the upper part is described to be about two inches, but in the perineum the skin only was separated; that is, the hollow was quite superficial. After five months attendance, during which time the rectum was never divided, the patient was brought to Paris; where, in a consultation between the Messieurs Faget and Bouden, it was agreed, that the only method of obtaining a cure, must be by extirpating, or cutting away the whole extremity of the intestine, as deep as it was laid bare; which operation is thus described—“ Je perçai d'abord le rectum de droit
 “ à gauche, avec un gros stilet; avec lequel je fis l'anse. Je com-
 “ mençai à couper le lambeau de peau qui tenoit au coccyx, & je
 “ continuai

Prejudice often prevents us from seeing truth, though it stands before us: for Mr. Le Dran, though he so strongly recommends the extirpation of a portion of the intestine, yet has made the same observation on those fistulæ which run too high for extirpation, as Mr. De la Faye: he has very justly remarked, that they will do well without such operation: and has given so good, and so true an account of the matter, that it is amazing he should not see, that the same method, both of reasoning and of acting, was equally applicable to both cases; that is, to those fistulæ which do not extend so high, as well as to those which do: he says,---“ On trouve souvent des sinus qui montent fort haut le long du rectum; & même
vers

“ continuai tout le long d'attache des muscles releveurs jusqu' à la
“ partie moyenne du perinée, ou il y avoit beaucoup de dureté, &
“ de callositez, que j'emportai; je pansai la playe avec un gros
“ bourdonnet, & des lam beaux de linge trempés dans l'eau almu-
“ neuse, le tout soutenu par plusieurs compresses & un bandage con-
“ venable, &c.” Mr. Faget says, that the patient was six months
longer in getting well. To which, I must take the liberty of add-
ing that he was much more fortunate than some whom I have seen
under the same treatment. The relator in the rest of the memoir,
endeavours to explain the method by which the new anus became
capable of executing the office of the old one; and very justly
seems to wonder, why the surgeon, who first had the care of the
patient, and who first opened the abscesses, did not divide the rec-
tum in each of them. Mr. Faget's surprize, and his censure on the
operator, are certainly well founded: but I must own that it seems
to me to be full as extraordinary, that he, who saw the propriety
of its having been done before, should not, at least, try what it
would do afterward. If this experiment had been made, and the
case properly conducted, I make little doubt that the pati-
ent might have been cured without the loss of his fundament. A
loss, which, though possibly in youth and health he might not be
so sensible of as to alarm him; yet in age, or a state of debility,
must prove a very grievous one.

“ vers la vessie, dans la tissu cellulaire qui en-
 “ toure ces parties : sinus qui semblent devoir
 “ rendre ces maladies incurables, parcequ’ils
 “ vont plus haut que le doigt ne peut aller. Mais
 “ l’experience m’a appris que ces sinus se rem-
 “ plissent presque toujours dans les six pre-
 “ miers jours---ou pour parler plus justement,
 “ que les chairs se rapprocherent, n’ayant été
 “ qu’ écartés par le pus, & non fondues.”---
 ‘ Sometimes we meet with sinusses, which run
 ‘ so high in the tela cellulosa, along the rectum,
 ‘ and up toward the bladder, that one would
 ‘ be inclined to believe them to be incurable,
 ‘ from their being beyond the reach of the fin-
 ‘ ger ; * but I have learned from experience,
 ‘ that

* It is hardly decent for a surgeon to say it ; but I am much in-
 clined to believe, that this circumstance of the sinus being out of
 the reach of the finger, is the very individual one, on which the
 expedition of the cure (that is, the shortness of time, in which Mr.
 Le Dran says, that he finds these cavities filled up) depends. For
 if they were within the reach of the finger of an operator, who
 thinks as this gentleman writes, he would immediately go to work
 with his instruments ; and if he did nothing worse, must necessari-
 ly prolong.—It has always been a very generally received opinion, that
 if the hollow of the sinus be higher than a finger in ano can reach,
 all chirurgic operation is fruitless. There is hardly an author an-
 cient or modern, who has not inculcated this doctrine, though dai-
 ly experience might have convinced them of its falshood.

Among the rest, Heister has given us his opinion on this subject,
 in the most positive manner :—“ Et sane nisi digitus, in anum de-
 “ pressus, fistulæ os attingere valet, verum illud adhuc profundius
 “ latet, sine vitæ periculo, ob metum lædendarum venarum majo-
 “ rum, sectio instituti nequit ; adeoque tunc parum plerumque,
 “ imo vero nihil omnino chirurgi artificia proficiunt,” &c.

This, which, as I have observed before, is the doctrine of all
 our writers, has always stood upon the same principle, viz. the
 fear of hæmorrhage ; and all the propagators of it have always
 supposed, that nothing but a division of the whole sinus could
 possibly

‘ that these sinuses fill up within the first six days.—Or, to speak more properly, that the membranes, which have only been separated, and not dissolved by the matter, again approach each other.’—

Can any man give a more rational or more true account of this matter, or produce a stronger

possibly produce a cure; which supposition is, by no means, true.

When the case is an abscess formed in the cellular membrane, the length of the sinus must be proportioned to the distance of the seat of such abscess from its external orifice : this is sometimes considerable, quite out of the reach of the finger in ano ; but it does, by no means, follow, that either this sinus must be divided through its whole length ; or that the disease cannot be cured ; and therefore, that it is better not to meddle with it at all. Frequent experience proves the contrary. If all that part of it, which is within the reach of the finger in ano, (that is all that part of it which is principally affected by the action of the muscles of the anus and rectum) be fairly divided ; if the wound so made, be dressed in such manner, as to produce no inflammatory irritation ; if it be not frequently poked into, and examined : and the patient’s habit be properly taken care of, the length of the sinus will add very little to the difficulty attending the cure ; all that is out of reach will collapse and heal ; and the case will very soon be exactly the same, as if the whole hollow was within the finger’s length.

The probability of an hæmorrhage from the large vessels about the upper part of the rectum, is a thing which ought, by all means, to be avoided, as it might give a great deal of trouble, and create some hazard ; but the operation which would induce such apprehension, being quite unnecessary, this risque is out of the question.

The last-mentioned author (Heister) although in general a very exact and careful writer, seems, in his observations on this complaint, rather to have copied what our predecessors have written on it, than to have given us what his own experience might have furnished him with : the latter would have convinced him, that all his preparation by bleeding, purging, &c. before the operation, is quite unnecessary ; that the blind fistulæ are very little, if at all, more difficult of cure than the open ones ; and that the disease in question admits of being treated, and cured, in pregnant women, as perfectly and as easily as in those who are not so. The contrary doctrines are, certainly, no rules of good practice, however venerable they may be from their antiquity.

stronger argument against cutting out a part of the intestine? The operator's finger cannot reach the upper part of the sinus, and, therefore, he cannot extirpate: but sinuses, which, by being out of reach, cannot be extirpated, do well without it, merely by the help of nature; who, when the matter is discharged, and such an opening made, as prevents any future lodgment, brings the sides of the cavity together, and endeavours thereby to obliterate it. It is true, that she can but seldom accomplish this end entirely; I mean, throughout the whole length of the sinus; the lower part generally remaining open, though contracted to narrow compass: this it is, most frequently, absolutely necessary to divide in order to obtain a cure; but that part of the said sinus, (if there be any) which is out of the reach of the instrument guided by the finger in ano, is not a matter of that consequence which it is supposed to be. If the lower part, or what is fairly within reach, be divided, such division will, in most cases which are curable at all, be fully sufficient for a cure, as I have often and often experienced. I know that this is contrary to the generally-received doctrine; but I know it is true, and am much inclined to believe, that the supposition of the necessity of laying open the whole sinus, however deep it may run, has contributed greatly to the fatigue and hazard which many people have unnecessarily undergone in this disease: it has occasioned such poking with long probes, and such cramming in of tents and dressings, as have proved extremely pernicious; and

and brought on symptoms and trouble, which would not have attended the same cases under other management.

One word more, and I have done with this part of my subject. As I have given my opinion so freely, concerning the practice of excision, a representation of the inconveniences likely to arise from it, might, from me, be thought to be an exaggeration: I shall, therefore, take the liberty, once more, to quote Mr. Le Dran; who, considered as a patron of the practice, cannot be supposed to overcharge it. He says,---“ Cette grande playe sera dans
 “ les commencemens pansée comme les autres; mais quand les chairs commencent à
 “ se rapprocher, elle demande des attentions
 “ particulieres; sans lesquelles, l’anus devi-
 “ endroit si étroit que les excréments ne pour-
 “ roient y passer; pour peu qu’ils ont de con-
 “ sistance. Il faut donc alors mettre jusque
 “ dans le rectum une tente de linge, lisse, assez
 “ longue, & assez grosse, pour entretenir le
 “ passage. Il faut même sur le fin, supplier à
 “ cette tente, par une espèce de suppositoire
 “ d’ivoire, percé en forme de cannule; &
 “ avoir soin de la bien assujettir par la ban-
 “ dage, à fin qu’elle ne sorte pas. La cicatrice
 “ étant faite, il faudra que le malade porte cet-
 “ te suppositoire encore pres d’un an; sans
 “ quoi la cicatrice ferreroit l’anus de plus en
 “ plus.”---“ This large wound should, at the
 “ first, be dressed like any other; but when
 “ the sides begin to approach each other, it
 “ will then demand particular attention, lest
 VOL. II. R the

' the fundament should become so contracted,
 ' that the fæces, if they be at all hard, cannot
 ' be expelled. Therefore, in order to keep the
 ' passage of a proper size, a smooth tent made
 ' of linen should be introduced ; which tent
 ' should be of such a size and length, as to
 ' serve the purpose for which it is intended.
 ' Toward the close of the cure, in the place of
 ' this, an ivory suppository, made in the form
 ' of a cannula, must be substituted, and kept
 ' constantly in, by means of a proper bandage.
 ' Which suppository must be worn for near a
 ' year after the sore is perfectly healed ;
 ' otherwise the cicatrix will contract the anus
 ' still more and more every day.*

This is what is called cutting for a fistula :
 this is the operation, which they, who have
 undergone it, do so pathetically describe and
 lament ; and what they, who have the misfor-
 tune to be afflicted with the disease, do (from
 the account of others) so fearfully dread. It
 is true, that it has the sanction of several emi-
 nent writers ; that it is practised by many sur-
 geons ; and that it is recommended and exhi-
 bited by anatomico-chirurgical teachers ; but
 notwithstanding these authorities, I shall not
 scruple to say, that it is cruel, unnecessary, and
 wrong.

That,

* To which he might have added, that when all this is done,
 and every precaution of this kind used, the patient will always find
 it difficult and painful, and sometimes absolutely impossible to re-
 tain a loose stool ;—an evil still greater than the trouble of expell-
 ing a hard one.

That, by these means abscesses, juxta anum, and fistulæ in ano, (as they are called) are cured, I make no doubt; nay, I know that they are: but I also know from repeated experience, that they are curable by means, which are more expeditious, more easy, and neither hazardous in the use, nor productive of evil in the event. I mean, by mere simple division of all that part of the sinus which is within reach; by soft, gentle treatment of the sore after such operation; and by proper care of the habit.*

The hæmorrhage, (to say nothing of the pain) which now and then attends the extirpation of a large piece of the intestine and fundament, is alarming, both to weak minds,

R. 2

and

* When the habit is out of order, as it most frequently is in persons afflicted with this disorder, if recourse be not had to internals, the surgeon will gain little ground. This is a circumstance which ought always to be attended to; and it is, in some measure, owing to a want of due regard to it, that we find such a farrago of different dressings; such remedies for fungous, for foul, for callous sores, &c. These diseased appearances and circumstances most frequently proceed from disorders in the habit; and if that be not corrected, the same appearances will continue, notwithstanding all our escharotics, detergents, digestives, incarnatives, &c. &c. &c.

In cold, debauched, lax, or sluggish habits, if the patient be not warmed by aromatics, and braced by the bark, these cases will often prove tedious and troublesome.

From the induration of the parts about, from the face and colour of the sore, and from the discoloured gleety discharge, callosity, latent mischief, and undiscovered sinuses will be suspected; whereas, in truth, neither one nor the other are the cause of such diseased appearances. The administration of proper remedies will, most commonly, in a few days, produce such an alteration, as the whole art of surgery could not (by mere externals) bring about in as many weeks, if at all. Many and many a sore of this kind have I seen brought into the hospital, which has had all these disagreeable appearances, which has long and fruitlessly, been treated with all the variety of externals; and which a decoction of the bark and rad. serpentariæ has, in a very short time, put into such a condition, as not to want any thing but dry lint.

and to weak bodies ; and the inconveniences arising from loss of substance about the verge of the anus, either in strong exercise, in the retention of loose stools, or the expulsion of hard ones, are so great, that I have known several people, who have daily and sincerely wished for their uncut fistulæ again : and who, either from pain, or uncleanness, or both, have been rendered truly unhappy.

In short, I can venture to assert, from many years experience, on a great variety of subjects, that when the disease is curable by chirurgic art, the method which I have proposed, will, with more ease, expedition, and certainty, attain that end, than the method by extirpation ; and that without producing any of those very disagreeable circumstances, which Mr. Le Dran has so justly described.

And for the truth of this assertion, I appeal to all those (many in number) who have for these ten or twelve years past, attended St. Bartholomew's-Hospital.

S E C T. VI.

HITHERTO I have considered the disease either as an abscess, from which the matter has been let out by an incision, made by a surgeon ; or from which the contents have been discharged by one single orifice, formed by the bursting of the skin, somewhere about the fundament.---I am now to take notice of it, when, instead of one such opening, there are several.

This

This state of the case generally happens, when the quantity of matter collected has been large, the inflammation of considerable extent, the adipose membrane very sloughy, and the skin worn very thin before it burst.---It is, indeed, a circumstance of no real consequence at all; but, from being misunderstood, or not properly attended to, is made one of additional terror to the patient, and additional alarm to the inexperienced practitioner: for it is taught, and frequently believed, that each of these orifices is an outlet from, or leads to, a distinct sinus, or hollow; whereas, in truth, the case is, most commonly, quite otherwise; all these openings are only so many distinct burstings of the skin covering the matter; and do all, be they few, or many, lead, and open immediately into, the one single cavity of the abscess: they neither indicate, nor lead to, nor are caused by distinct sinuses; nor would the appearance of twenty of them (if possible) necessarily imply more than one general hollow.

If this account be a true one, it will follow, that the chirurgic treatment of this kind of case ought to be very little, if it all, different from that of the preceding; and that all that can be necessary to be done, must be, to divide each of these orifices, in such manner, as to make one cavity of the whole. This the probe knife will easily and expeditiously do; and, when that is done, if the sore, or, more properly, its edges, should make a very ragged, uneven appearance, the removal of a small portion of such irregular angular parts, will answer all the purposes of making room for the application

cation of dressings, and for producing a smooth, even cicatrix, after the sore shall be healed.

When a considerable quantity of matter has been recently let out, and the internal parts are not only in a crude, undigested state, but have not yet had time to collapse, and approach each other; the inside of such cavity will appear large, and, if a probe be pushed with any degree of force, it will pass in more than one direction into the cellular membrane, by the side of the rectum. But let not the inexperienced practitioner be alarmed at this, and immediately fancy that there are so many distinct sinuses; neither let him, if he be of a more hardy disposition, go to work immediately with his director, knife, or scissors: let him enlarge the external wound, by making his incision freely; let him lay all the separate orifices open into that cavity; let him divide the intestine lengthwise by means of his finger in ano; let him dress lightly and easily; let him pay proper attention to the habit of the patient; and wait, and see what a few days, under such conduct will produce. By this, he will frequently find, that the large cavity of the abscess will become small and clean; that the induration, round about, will gradually lessen; that the probe will not pass in that manner into the cellular membrane; and, consequently, that his fears of a multiplicity of sinuses were groundless. On the contrary, if the sore be crammed, or dressed with irritating, or escharotic medicines, all the appearances will be different: the hardness will increase, the lips of the wound will be inverted, the cavity of the sore will remain large, crude, and foul; the discharge will

will be thin, gleety, and discoloured ; the patient will be uneasy and feverish ; and, if no new cavities are formed by the irritation of parts, and confinement of matter, yet the original one will have no opportunity of contracting itself ; and may, very possibly, become truly fistulous.

I will not say, that there never is more than one sinus, running along the side of the intestine (I mean, on the same side); but I will venture to assert, that, for one instance, in which the case is really so, forty are supposed, and talked of. Distinct and separate openings in the skin, from the same cavity, or sinus, are common, but perfectly distinct sinuses, running along the intestine, on the same side, are very far from being so ; they are very uncommon.

I should be very sorry to have such a misconstruction put upon what I have said, as to have it supposed, that I made light of a disease, which, every body knows, is, sometimes, attended with very troublesome circumstances ; or, that I make pretension to any particular secret method of treating it ; or, that I think myself more capable of conducting it than the generality of practitioners : as none of these are true, I should be sorry, to have them imputed to me. I do allow (what is undoubtedly true,) that this disease, in some constitutions, and under some circumstances, will engage the attention, and exercise the judgment of the best and most able practitioner ; but, on the other hand, I must repeat, that a great deal of the trouble, which it is sometimes attended with, does not arise from the disease
itself,

itself, but from misconception, and improper treatment.

I have freely, and without reserve, related that method of treatment, which I have found to be most successful ; nor do I know any applications, which are at all specific, or more proper for this kind of sore than for all others, in parts of the same structure : the most simple, and they which give the least pain, are the best : neither these, nor mere dry lint, should ever be introduced in larger quantity than can be admitted and borne with ease ; that the sore may not be distended, but a fair opportunity given to nature to contract it gradually.

This every practitioner may be capable of executing, since it consists more in abstaining from doing mischief, than in doing any thing which may require particular judgment or dexterity. It is true, that the method which I have proposed, will considerably lessen the chirurgic apparatus of instruments and dressings ; but it will be attended with success, and produce that which every patient has a right to expect from his surgeon ;--- a firm cure, in a short space of time, and with the least possible fatigue.

It sometimes happens, that the matter of an abscess, formed juxta anum, instead of making its way out through the skin, externally near the verge of the anus, or in the buttock, pierces thro' the

the intestine only. This is what is called a blind internal fistula : *Fistule borgne interne*.

In this case, after the discharge has been made, the greater part of the tumefaction subsides, and the patient becomes easier. If this does not produce a cure, which sometimes, though very seldom, happens, some small degree of induration generally remains in the place where the original tumor was; upon pressure on this hardness, a small discharge of matter is frequently made per anum; and sometimes the expulsion of air from the cavity of the abscess into that of the intestine, may very palpably be felt, and clearly heard; the stools, particularly, if hard, and requiring force to be expelled, are sometimes smeared with matter; and although the patient, by the bursting of the abscess, is relieved from the acute pain which the collection occasioned, yet he is seldom perfectly free from a dull kind of uneasiness, especially if he sits for any considerable length of time in one posture. The real difference between this kind of case, and that in which there is an external opening (with regard to method of cure) is very immaterial; for an external opening must be made, and then all difference ceases. In this, as in the former, no cure can reasonably be expected, until the cavity of the abscess, and that of the rectum, are made one; and the only difference is, that in the one case we have an orifice at, or near, the verge of the anus, by which we are immediately enabled to perform that necessary operation; in the other, we must make one.

Some of the best of the modern writers have, I think, represented this state of the disease, in
such

such manner, as to make it seem to labour under difficulties, which I cannot say that I ever found it really did ; and have thereby thrown the appearance of obscurity and trouble, on what is generally clear, and easy.

In Mr. De la Faye's very excellent notes on Dionis, is the following passage. " Lorsque les
 " fistules n'ont pas d'ouverture externe, & que ri-
 " en ne designe le lieu où il faut faire l'operation,
 " il y a deux moyens de le decouvrir. Le pre-
 " mier est de l'invention de feu Mr. Thibaut, qui
 " portoit le doigt index dans l'anus, & le re-
 " courboit ; ensuite en le tirant un peu a lui, pour
 " ramener a l'exterieur, le foyer de la matiere ;
 " tandis qu'il pressoit avec un autre doigt les en-
 " virons du fondement : la douleur qu'il causoit au
 " malade marquoit le lieu ou il falloit faire l'in-
 " cision pour rendre la fistule complete. Le se-
 " cond est de Mr. Petit, qui met dans l'anus pen-
 " dant vingt-quatre heures une tente qui touchant
 " l'ouverture de la fistule, empeche le pus de s'e-
 " couler, & le ramasse en assez grande quantité
 " pour faire a l'exterieur une tumeur, qu'indi-
 " que le lieu ou il faut faire l'operation."----
 ' When fistulæ have no external opening, and
 ' there is no mark, whereby to distinguish the
 ' place where the operation ought to be perform-
 ' ed, there are two methods of discovering it; the
 ' first is, that of the late Mr. Thibaut, who put
 ' his fore-finger into the rectum ; and curving it,
 ' endeavoured to bring the foyer, (that is, the hol-
 ' low which furnishes the matter,) nearer to the
 ' external part of the fundament ; while, with his
 ' other finger, he pressed all the parts round about :
 the

' the pain which he, by these means, gave to the
 ' patient, marked out the place where the incision
 ' ought to be made, in order to render the fistu-
 ' la complete. The second method is, that of Mr.
 ' Petit: He put into the anus, for the space
 ' of twenty-four hours, a tent; which, by stopp-
 ' ing up the orifice of the fistula, hindered the mat-
 ' ter from running out into the cavity of the gut;
 ' and forced it to be collected in such quantity
 ' as to form an external tumefaction, sufficient to
 ' indicate the place where the operation ought to
 ' be performed.'

The former of these, as far as it depends on
 that single circumstance, that the point where the
 pain is felt, is the exact place where the opening
 ought to be made, is, by no means, to be depend-
 ed upon: the latter method is operose, trouble-
 some, and, in general, very insufficient for the
 purpose. If the orifice, through which the mat-
 ter has made its way, lies high in the intestine, a
 tent cannot be introduced so as to press against it
 sufficiently, unless it be so long, and so large, as
 to occupy the whole cavity of the gut. How fa-
 tiguishing, and how difficult, the retention of this for
 twenty-four hours, must be to many people, is ea-
 sy to imagine: if the orifice be near to the fun-
 dament, in the lower part of the intestine, the pos-
 sibility of closing it may be somewhat greater; but
 the inconvenience must be nearly the same, as well
 as the uncertainty.

In short, not to enter farther into this totally un-
 necessary kind of practice, I would advise the man
 who thinks to try it, to consider the stricture made
 by the contraction of the verge of the anus; the
 expansion

expansion of the cavity of the gut, immediately above that stricture; the great dilatability of the membranes of the intestine, and the uneven, wrinkled state in which it must necessarily be; and then to reflect, how very unlikely it is, that he should, without filling the whole cavity, stop, or block up a small breach, whose exact situation he cannot know, or learn.

It is true, that by discharge of the matter into the cavity of the intestine, the fluctuation of it within the abscess is no more to be felt; the tension ceases; the tumor, in great measure, subsides; and, consequently, all these indications of its situation disappear; but I do not remember ever to have seen a single case of this kind, in which there was not in the buttock, or near to the verge of the anus, either a remaining discolouration of the skin; or a hardness, or something by which the finger of a careful, judicious examiner, could clearly and certainly find where the disease was. Each of the circumstances just mentioned, do as certainly point out where the hollow, leading to the sinus is, as the fluctuation of the matter did before the cavity burst; and a knife, or lancet, plunged into this (provided it be pushed deep enough) will never fail to enter the said hollow. When this is done, the case becomes what is commonly called complete, and must be treated accordingly.

S E C T. VII.

I Come now to that state of the disease, which may, truly and properly, be called fistulous. This is generally defined, sinus angustus, callosus, profundus; acri sanie diffluens: or, as Dionis translates it, “ Un ulcere profond, & caverneux, dont l’entrée est étroite, & le fond plus large; avec issue d’un pus acre & virulent; & accompagné de callosités.”

Various causes may produce, or concur in producing, such a state of the parts concerned, as will constitute a fistula, in the proper sense of the word; that is, a deep, hollow sore, or sinus, all parts of which are so hardened, or so diseased, as to be absolutely incapable of being healed, while in that state; and from which a frequent, or daily discharge is made, of a thin, discoloured sanies, or fluid.

These I shall take the liberty of dividing into two classes, viz. those which are the effect of neglect, distempered habit, or of bad management; and which may be called, without any great impropriety, local diseases: and those which are the consequence of disorders, whose origin and seat is not in the immediate sinus or fistula, but in parts more or less distant; and which, therefore, are not local complaints.

The natures and characters of these are obviously different by description; but they are still

still more so in their most frequent event: the former being generally curable by proper treatment; the latter frequently not so, by any means whatever.

Under the former, I reckon all such cases, as were originally mere collections of matter within the coats of the intestine rectum, or in the cellular membrane surrounding the said gut: but which, by being long neglected, grossly mismanaged, or, by happening in habits which were disordered, and for which disorders no proper remedies were administered, suffer such alteration, and get into such state, as to deserve the appellation of fistulæ.

Under the latter, are comprized all those cases, in which the disease has its origin and first seat in the higher and more distant parts of the pelvis; about the os sacrum, lower vertebræ of the loins, and parts adjacent thereto; and are either strumous, or the consequence of long and much distempered habits: or the effect of, or combined with, other distempers, local or general; such as a diseased neck of the bladder, or prostrate gland, or urethra; the lues venerea, cancers, &c. &c. &c.

Among the very low people, who are brought into hospitals, we frequently meet with cases of the former kind: cases, which, at first, were mere simple abscesses; but which from uncleanness, from intemperance, negligence, and distempered constitutions, become such kind of sores, as may be called fistulous.

In

In these the art of surgery is, undoubtedly, in some measure, and at some time, necessary; but it very seldom is the first or principal fountain, from whence relief is to be sought: the general effects of intemperance, debauchery, and diseases of the habit, are first to be corrected and removed, before surgery can, with propriety, or with reasonable prospect of advantage, be made use of. If the patient be infected with the lues venerea, that must first be cured; if he be anasarcaous, or leucophlegmatic, that indisposition must be corrected; if he be feverish, that heat must be calmed; and if he labour under any of the general ill effects arising from foul skin, dirty clothing, unclean and unwholesome lodging, &c. producing pallid countenance, undue secretions, loss of appetite, œdematous legs, intermittent fevers, &c. the state of blood which always accompanies such complaints, must be amended before surgery can be administered to any good purpose. If knife, caustic, or whatever other external means are thought proper to be used, be applied before such general evils have been corrected, they will do little or no good; and may do much mischief. On the contrary, when the lues is corrected; when the patient is cool, and gets good sleep; when the secretion of urine is so re-established, the general absorbent faculty so restored, and the solids so braced, that the legs cease to swell, and the patient recovers his natural appetite and complexion; we find the local disease, instead of standing still, has almost always made great advances

vances towards being cured, by being altered in all the principal circumstances of induration, crudity, gleet, &c. Whatever chirurgic operation or treatment may now be necessary, will, in all probability, succeed immediately; whereas, all our attempts before such care, do, and must prove fruitless.

The surgery required in these cases, consists in laying open, and dividing the sinus, or sinuses, in such manner that there may be no possible lodgment for matter, and that such cavities may be fairly opened lengthways into that of the intestine rectum: if the internal parts of these hollows are hard, and do not yield good matter, which is sometimes the case, more especially where attempts have been made to cure by injecting astringent liquors, such parts should be lightly scratched, or scarified, with the point of a knife or lancet, but not dressed with escharotics; and if, either from the multiplicity of external orifices, or from the loose, flabby, hardened, or inverted state of the lips and edges of the wound near to the fundament, it seems very improbable, that they can be got into such a state as to heal smooth and even, such portion of them should be cut off, as may just serve that purpose. The dressings should be soft, easy, and light; and the whole intent of them to produce such suppuration as may soften the parts, and may bring them into a state fit for healing.

If a loose, fungous kind of flesh has taken possession of the inside of the sinus, (a thing much talked of, and very seldom met with) a slight touch

touch of the lunar caustic will reduce it sooner, and with better effect on the sore, than any other escharotic whatever.

The method and medicines, by which the habit of the patient was corrected, must be continued, (at least, in some degree) through the whole cure; and all those excesses and irregularities, which may have contributed to injure it, must be avoided.

By these means, cases, which, at first, have a most disagreeable and formidable aspect, are frequently brought into such state, as to give very little trouble in the healing.

More trouble must be supposed to attend this kind of case, than does a mere simple, recent abscess; and more time will necessarily be required to bring the parts into a kindly state: but, under proper conduct, they will in general, be found to do well, without any of those operations which mankind have such dread of; and which are, in general taught and practised.

If the bad state of the sore arises merely from the improper manner, in which it may have been treated; I mean, from its having been crammed, irritated, and eroded; the method of obtaining relief is so obvious, as hardly to need recital.

A patient, who has been so treated, has, generally, some degree of fever; has a pulse, which is too hard, and too quick; is thirsty, and does not get his due quantity of natural rest. A sore, which has been so dressed, has, generally, a considerable degree of inflammato-

ry hardness round about ; the lips and edges of it are tumid, full, inflamed, and, sometimes, inverted ; the whole verge of the anus is swollen ; the hemorrhoidal vessels are loaded ; the discharge from the fore is large, thin, and discoloured ; and all the lower part of the rectum participates of the inflammatory irritation, producing pain, bearing-down, tenesmus, &c. *Contraria contrariis* is never more true than in this instance : the painful, uneasy state of the fore, and of the rectum, is the great cause of all the mischief, both general and particular ; and the first intention must be to alter that. All escharotics must be thrown out, and disused ; and in lieu of them, a soft digestive should be substituted in such manner, as not to cause any distention, or to give any uneasiness from quantity ; over which, a poultice should be applied ; these dressings should be renewed twice a day : and the patient should be enjoined absolute rest. At the same time, attention should be paid to the general disturbance, which the former treatment may have created. Blood should be drawn off from the sanguine ; the feverish heat should be calmed by proper medicines ; the languid and low should be assisted with the bark and cordials ; and ease in the part must, at all events, be obtained by the injection of anodyne clysters of starch and opium.

If the sinus has not yet been laid open, and the bad state of parts is occasioned by the introduction of tents imbued with escharotics, or by the injection of astringent liquors, (the one
for

for the destruction of callosity, the other for the drying up gleet and humidity) no operation of any kind should be attempted until both the patient and the parts are easy, cool, and quiet: cataplasm, clysters, rest, and proper medicines must procure this; and when that is accomplished, the operation of dividing the sinus, and (if necessary) of removing a small portion of the ragged edges, may be executed, and will in all probability, be attended with success. On the contrary, if such operation be performed while the parts are in a state of inflammation, the pain will be great; the sore for several days very troublesome, and the cure prolonged, or retarded, instead of being expedited.

Particular individual cases may require little particularities in the treatment; but what I have drawn is the general outline. In this, as in most parts of physic and surgery, the first and great object is, to know what the intention is, which ought to be pursued; when that is clear and determined, a man of any degree of knowledge will seldom be at a loss for materials wherewith to execute it.

Abscesses, and collections of diseased fluids, are frequently formed about the lumbal vertebræ, under the psoas muscle, and near to the os sacrum; in which cases, the said bones are sometimes carious, or otherwise diseased. These sometimes form sinuses, which run down by the side of the rectum, and burst near to the fundament.

The discharges from these are generally large, foetid, thin, and sharp; it is, therefore, no wonder, that the sinuses, by which they are made, together with the orifices thereof, become hard, and callous; that is, truly fistulous; but it must be obvious to every one, who will consider it, that the chirurgic treatment of these sores and sinuses can be of very little consequence towards curing the diseases from whence they arise: their seat is generally out of the reach either of our instruments, or our applications; and their nature is not frequently found to be capable of being altered by medicine. However that may be, certain it is, that what advantage a person in such circumstances is at all likely to receive, is not derivable from surgery; but must be from medicine, or from more powerful nature.

Persons, who have long laboured under what is commonly called a cachectic habit, have sometimes large collections of matter formed in the cellular membrane within the cavity of the pelvis; which, like the preceding, form sinuses, and burst their way out near the anus. These sinuses, from the nature of the discharge, from the depth of the seat of the disease, and from the length of time which the drain continues, do almost necessarily become fistulous.---Such collections do sometimes prove salutary crises; though much more frequently they hasten the patient's dissolution: but be the event which it may, although the sore is certainly fistulous, yet can the art of surgery do very little, if any material service. If the event be good, the crisis must be far advanced

vanced, and very nearly determined, before any operation, or even dressing (except what is superficial, and merely for the purpose of cleanliness) can be of any use; and if the discharge proves too much for the strength of the patient, it is pretty clear, that neither the art of surgery, nor indeed any other can avail him.

On the other hand, if it so happens, that nature is so powerful, that, by means of this drain, she can free the habit from its former diseased state; or if, by the help of medicine, such alteration can be brought about, the fistula will not prove very troublesome: for the same alteration, at least in some degree, will be found to have been made in that; and if it be not brought thereby absolutely into a healing state, yet it will be found to be so much altered in its principal circumstances, that the common method, already laid down, will be fully sufficient for the completion of a cure.

We are, by authors, very frequently advised not to be too hasty in the cure of these cases; as the continuance of the discharge may prove beneficial to the patient. That these discharges are now and then of great advantage, is beyond all doubt; but very happily for such patients, the healing or not healing these sores is very seldom within our determination. We may, indeed (and I fear often do) by indiscreet conduct, prevent a sore from healing, when it is nature's intention that it should be healed: but when she finds herself relieved or benefited by a discharge of this kind, she will generally continue it, in spite
of

of our most officious endeavours to the contrary.

Cancers and cancerous sores are sometimes formed in the cavity, or in the neighbourhood of the rectum, and fundament: in which they make most terrible havock, and afford most melancholy spectacles.

As I do not know what will cure a cancer, I leave the discussion of this to those who say that they do; most sincerely wishing, that it was in my power to say, that I had, once in my life, known them to have fulfilled their promise.

Fistulous sores, sinuses, and induration about the anus, which are consequences of diseases of the neck of the bladder, and urethra, called fistulæ in perinæo, require separate, and particular consideration.

In these the external openings, with the sinuses leading from them into the cellular membrane, are the least part of the complaint: the stricture in the urethra, the induration of the whole neck of the bladder; the hardened fungous, enlarged, or ulcerated state of the prostate gland; the diseases of the verumontanum, of the vesiculæ seminales, and vasa deferentia, are the great and principal objects of consideration.

A very serious consideration, they certainly make. Great and manifold are the miseries which are derived to mankind from these causes; and much more diligent inquiry do they deserve, than they have yet met with: but as they do not immediately belong to my present subject, I must omit, or, at least, to another opportunity defer entering into them.

SOME



SOME FEW
GENERAL REMARKS
ON
FRACTURES
AND
DISLOCATIONS.



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D I S L O C A T I O N S.

NO part of surgery is thought to be so easy to understand, as that which relates to fractures and dislocations. Every the most inexpert, and least instructed practitioner, deems himself perfectly qualified to fulfil this part of the chirurgic art; and the majority, even of these, are affronted by an offer of instruction, on a subject with which they think themselves already so well acquainted.

This is also the opinion of a considerable part of the people. They regard bone-setting (as it is called) as no matter of science; as a thing which
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the most ignorant farrier may, with the utmost ease, become soon and perfectly master of; nay, that he may receive it from his father and family, as a kind of heritage. We all remember the great, though short-lived reputation of the late Mrs. Mapp. We all remember, that even the absurdity and impracticability of her own promises and engagements were by no means equal to the expectations and credulity of those who ran after her; that is, of all ranks and degrees of people, from the lowest labourer or mechanic, up to those of the most exalted rank and station; several of whom not only did not hesitate to believe implicitly the most extravagant assertions of an ignorant, illiberal, drunken, female savage; but even solicited her company; and, at least, seemed to enjoy her conversation.

The desire of health and ease, like that of money, seems to put all understandings, and all men upon a level; the avaritious are duped by every bubble; the lame and the unhealthy by every quack. Each party resigns his understanding; swallows greedily, and for a time believes implicitly the most groundless, ill-founded, and delusory promises; and nothing but loss and disappointment ever produces conviction. Arts, trades, and manufactures, are allowed to be learnt, in general, by these who have employed a proper quantity of time and attention in such pursuits; and it seems most singularly unjust, as well as untrue, to suppose that physical people are the only part of mankind, who are all either so dull as not to be able to learn; or so profligately wicked, as not to practice their art to the best of their judgment, and to
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the greatest possible advantage of mankind.----- Surely there are, and always have been among us as well as in all other classes, men truly able and perfectly honest; men, who well understand the science which they profess; and who practise it not only with great ability, but with strict integrity. I cannot be supposed to say or to mean this as a vindication of every individual. Different men have different powers and capacities. The multitude with us, as with all ranks and degrees (not excepting any) will always be deficient. Advancements in knowledge will always be owing to the ingenuity and industry of a few particular people; but such advancements will always, in due time, more or less influence the rest. They have so done; and notwithstanding that there remains a great deal yet to be done, to bring surgery to that degree of perfection of which it is capable, yet, whoever will compare the present practice of it with that of a very few years ago, cannot justly or with any degree of candor withhold his commendation from his contemporaries.

I remember, some years ago, to have heard a judge from the bench tell a jury, that he believed a country bone-setter knew full as much, if not more of the matter of his own business, than any, the most eminent surgeon in the kingdom. I will not enter into a disquisition concerning the rightness of a judge's opinion. Perhaps his lordship might very little understand the thing concerning which he decided so peremptorily; without either injustice or partiality, I may certainly suppose him to have been a much more able lawyer

yer than surgeon : and I believe it will also be allowed ~~that~~ general reflections of this kind are, and must be, the consequence of a petulant attempt to be witty, rather than of conviction ; and therefore, at best, are frivolous and idle. But on the other hand, I am very willing to allow (what indeed I have already allowed) that many parts of surgery, are still capable of considerable improvement ; and this part perhaps, as much as, if not more than any ; it being one of those in which a general observance of, and rigid adherence to old prescribed rules, have prevented the majority of practitioners from venturing to think for themselves ; and have induced them to go on in a beaten track, from which they might not only safely but advantageously deviate.

The general doctrine, relative to fractures, is contained under the following heads, as parts of the treatment of them.

Extension.

Counter-extension.

Coaptation or setting.

Application of medicaments.

Deligation or bandage.

Position.

Prevention or relief of accidents.

This is the general arrangement of the subject by most of the writers on it, and a very just and proper one it is ; but notwithstanding the parade of books under these various heads, much less alteration will be met with, since the times of Hippocrates, Galen and Celsus, than an inquirer might expect, or than the subject is capable of.

I must

I must desire that what I have said may not be misconstrued. I do not mean that there are not, and have not at all times been, men of particular ingenuity, who have deviated from the common methods, and have greatly improved the art; but still the common methods are the same, and the multitude of practitioners religiously follow them. Let me not therefore be charged with presumption or arrogance, if I say, that under almost every of the foregoing heads the practice is capable of considerable improvements; improvements which would show rationality and sense in the surgeon, and produce ease and convenience to the patient.

I am aware that some of my readers may be inclined to charge me with affecting to deviate from the commonly prescribed rules; and to contradict opinions, which a great length of time, and a long succession of writers have given sanction to.

----- "quæ
 "Imberbes didicere, senes perdenda fateri,"
 is a hard lesson sometimes to human vanity, and what requires some degree of candor to learn. But, on the other hand, if it was not now and then practised, I know not how such an art as surgery (whose basis is experience) could ever be improved. Our ancestors deserve our best thanks for the assistance which they have given us; where we find them to be right, we are obliged to embrace their opinions as truths; but implicit faith is not required from man to man; and our reverence for our predecessors

predecessors must not prevent us from using our own judgments. Ancient and modern are mere sounds, and can signify nothing in this case, unless with the former we can connect an idea of truth established and confirmed by time and experience, and with the latter, that of demonstrable improvement upon what has gone before.

If what I have to urge is not capable of being verified, and confirmed by experience, it must sink into nothing; but if, upon trial, it shall be found by the majority, (as it has been by me and some others) to be not only true and practicable, but highly conducive to the ease and benefit of the afflicted, it ought to have as much weight, though delivered by a living writer, as if it had proceeded from the remotest antiquity: its use, not its date, should give it value. If practitioners, since the time of Albucasis, had been contented with his doctrine, and never had ventured to think for themselves, surgery had not been what it now is; and its great merit would still have consisted in the multiplicity of its hot irons. In short, to such as think that we are seldom or never to deviate from the opinions and practice of those who have gone before us, I shall take the liberty of answering in the words of the great Mr. Locke, who says, "the floating of
" other mens opinions in our brains, makes us
" not one jot the more knowing, though they
" happen to be true. And beaten tracks lead
" those whose thoughts reach only to imita-
" tion."

“tion,” ‘non quo eundem est, sed quo
‘itur.’

Before I enter on the subject, the reader will give me leave to acquaint him, that it is by no means my intention to write a regular treatise on fractures, although I think the subject well deserving of, and even requiring one. I only mean to throw out a few hints, which I hope may prove intelligible and useful.

The first article, in the general arrangement, is extension; under which may also be comprehended the second, or counter-extension.

In order to accomplish this, we are directed, if the fracture be of the thigh or leg, to place the patient in a supine posture, and the broken limb in a straight one; then having the upper part of it held firm and steady, by proper assistants, we are ordered, by means of hands, ligatures, lacs, or even in some cases by pieces of machinery, to make such an extension or stretching of the limb lengthways, as shall enable the surgeon to place the ends of the broken bone in as apt, that is, in as even a position, with regard to each other, as the nature of the fracture will admit.—This is a short description of what in the vulgar phrase, is called setting a broken bone; and is most commonly a painful operation to the patient, a fatiguing one to the operator and his assistants; and what is worse, is in many instances found to be inefficacious; at least, not fully to answer the
intention

intention of the one, or the expectation of the other. *

Writers, in general, are very precise and formal in the directions which they have given, for the due and proper accomplishment of this purpose. They have told us, that the extension should be made slowly and gradually; and should be continued till the ends of the bone are separated from each other sufficiently to admit of the fracture being set without risque of breaking off any points or inequalities, and to enable us to place them perfectly smooth and even. All this, like many other of the preceptive parts of physic and surgery, is very pretty on paper, but not often found to be practicable in the chamber. The direction to continue the extension until the ends of the bones are at a certain distance, lengthways from each other, plainly implies a considerable degree of violence; the limb must, by such force, be not only

• “ Instruments for extension are threefold; first the surgeon’s hands, &c. secondly, funes and habenæ, a sort of bandage fit to pluck at, in order for extension; thirdly, there are organa & machinemata, engines used by us, and invented by the antients.”

WISEMAN.

The very mention of funes, habenæ, organa and machinemata, implies a force exceeding that of mere hands. A degree of force, which in a fracture never can be wanted, if the limb be rightly placed; a degree of force which must, in the nature of things, do mischief; and a degree of force whose whole effect, however great, must cease immediately upon its being removed; unless the fracture be particularly and luckily circumstanced.

There are not wanting instances of the muscles surrounding a bad though simple fracture, having been torn by extension, and spasm and other mischief thereby produced. See cautions on this subject, laid down by many old writers, particularly by Galen and Albucasis.

only made longer than its fellow, or than nature ever intended it should be, but this procrustian method of lengthening it is ordered to be executed while the limb is in such position as to put all the muscles most on the stretch, and render them least likely to yield to it. Now, not to say a word of the great probability of the points and edges of the fracture wounding the surrounding muscles, or of such wounds being more painful, or worse in their consequences, when inflicted on parts thus stretched, or of the addition that such force must make to the laceration already necessarily made by the fracture; I say, not to mention a word of all this, can the method itself (without considering any accidental, adjunct circumstances) be practised in every fracture, or even in the majority of fractures? Will it be done properly by the rude, the inattentive, and the ignorant? if attempted by such, will it not be, is it not, frequently productive of pain, tumefaction, inflammation, and extravasation; which are set to the account of the nature of the fracture, and to inevitable necessity? and when done ever so properly, will it, can it, in an oblique or splintered fracture, answer the purpose it is intended for, or produce a more happy coaptation?

Whence arise these evils? from whence proceed the difficulty and the so frequent disappointment?

In order to understand this rightly, let us for a moment consider, what is or ought to be

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meant by the terms extension and counter-extension, and why they become necessary: for if the greater part of the pain attending such method, and the frequency of disappointment, both to patient and surgeon, should be found to arise from this part of the process; and that such part can be either disused without prejudice, or altered with advantage, we ought to think ourselvss happy in having it in our power to correct our error.

Neither extension, nor counter-extension, can ever be necessary, on account of the mere fracture, considered abstractedly. The broken ends of the bone or bones are of themselves inactive; and if not acted upon by other parts, they would always remain motionless. When any attempt is made to put them into motion, they of themselves can make no possible resistance; nor can any be made on their part, save an accidental one arising from the points of the fracture being entangled with each other; and when they have been once, by the hand of the surgeon, placed properly and evenly with regard to each other, they would of themselves for ever remain so. What then is the reason why fractured bones always suffer a greater or a less degree of displacement? why is a broken limb almost always shorter than its fellow? what creates the resistance which we always find in attempting to bring the fractured parts aptly together? whence does it proceed, that when we have done all that is in our power (according to this mode

mode of acting) the ends of the fracture will, in many cases, become again displaced, and lameness and deformity frequently ensue? In short, what are the parts or powers which act on the bones, and which, by so acting on them, produce all these consequences?

These parts are the muscles, the only moving powers in an animal body. By the action of these on the bones, all locomotion is performed, and cannot be performed without them: and although all bones, when broken, are in some degree displaced and shortened, yet it will always be found, that in proportion as the muscles surrounding, or in connection with a bone, are strong or numerous, or put into action by inadvertence or spasm, so will the displacement of the ends of such bone, when fractured, be. The even and smooth position of the fractured ends of a tibia, when the fibula of the same leg is entire and unhurt; that is, when the muscles therefore cannot act upon the former; the visible and immediate deformity, when both the before-mentioned bones are broken nearly in the same place; that is, when the muscles can act upon, and displace such fracture, the great difficulty frequently met with, in endeavouring to get a broken os femoris to lie even tolerably smooth, and to prevent such broken limb from being much shorter than the other, are, among others which might be produced, such strong, and irrefragable proofs as need no comment.

From the muscles then, and from them only, proceeds all the difficulty which we meet with in making our extension; and by the resistance of these, and of these only, are we prevented from being always able to put the ends of a fractured bone immediately into the most apt contact.

Let us in the next place consider, what it is which gives to a muscle, or to the principal muscles of a limb, the greatest power of resisting any force applied to them ab externo, in order to draw them out into greater length; for whatever that is, the same thing will be found to be the cause of the different degrees of resistance in setting a fracture.

Does not the putting the muscles in a state of tension, or into a state approaching nearly to that of tension, almost necessarily produce this effect? or, in other words, does not that position of a limb, which puts its muscles into, or nearly into such a state, give such muscles an opportunity of exerting their greatest power either of action or of resistance? This I believe cannot be denied. On the other hand, what is the state or position of a muscle which is most likely to prevent it from acting, and to deprive it most of its power of resistance; or what is that position of a limb which, in the case of a broken bone, will most incapacitate the muscles from acting on, and displacing it; and in the greatest degree remove that resistance which they have it in their power to make to the attempts for the reduction of such fracture? Is it not obvious, that putting a limb into such position as shall relax the whole set of muscles belonging

belonging to or in connection with the broken bone, must best answer such purpose? Nothing surely can be more evident: if this be granted, will it not, must it not follow, that such posture of a broken limb must be the best for making the reduction; that is, it must be that in which the muscles will resist the least, and be least likely to be injured; that in which the broken bone will be most easily set, the patient suffer least pain in present, and that from which future lameness and deformity will be least likely to happen. A little attention to what frequently occurs, may perhaps serve to illustrate and confirm this doctrine better than mere assertion.

What is the reason why no man, however superficially acquainted with his art, ever finds much trouble in setting a fractured os humeri, and that with very little pain, and a very small degree of extension? Is it not because both patient and surgeon concur in putting the arm into a state of flexion; that is, into such a state as relaxes all the muscles surrounding the broken bone? and is it not for the same reason that we so very seldom see (comparatively speaking of this bone with others) a deformity in consequence of a fracture of it? Let the reduction be attempted with the arm extended from the body, and the difficulty of setting will be much increased: let the arm be deposited in an extended straight position, and the fracture will be displaced and lie uneven.

Apply the same kind of reasoning to the os femoris; that bone whose fracture so often

ten lames the patient, and disgraces the surgeon.

Will it not be more cogent, and more conclusive, in proportion as the muscles in connexion with this bone are more numerous and stronger? I would ask any man, who has been much conversant with accidents of this kind, what is the posture which almost every person whose os femoris has been newly broken, puts himself into in order to obtain ease, until he gets proper assistance? Do such people stretch out their limb, and place their leg and thigh straight, and resting on the calf and heel? I believe seldom or never. On the contrary, do not such people almost always bend their knee, and lay the broken thigh on its outside? and is not the reason, why this must be the most easy posture, obvious.

From want of attention to, or from not understanding these few self-evident principles, many people permit their patients to suffer considerable inconveniences both present and future.

It is a maxim universally taught and received, that a fractured limb may be in such state, as not to admit of the extension necessary for its being set; that is, if assistance be not at hand when the accident happens, if they who bring the patient home, do it so awkwardly or rudely as to bruise and hurt the part; if from drunkenness, folly, or obstinacy in the patient it happens that the limb is so disordered that it is found to be much swollen, inflamed, and painful, it is allowed not to be in a state to admit extension.

This,

This, I say, is a general maxim, and founded upon very just principles; but what is the general practice in consequence of it? It is, to place the limb in an extended, straight position, to secure it in that, and then by proper means, such as fomentation, poultice, &c. to endeavour to remove the tension and tumor. Now if it be considered, that the swollen, indurated, and inflamed state of the muscles, is the circumstance which renders extension improper, surely it must be obvious, that such position of the limb as necessarily puts these very muscles in some degree on the stretch, must be a very improper one for the accomplishment of what ought to be aimed at. Under this method of treatment, the space of time which passes in the removal of the tension, is sometimes considerable; so considerable, that a happy and even coaptation becomes afterwards impracticable; and then this accident, which nine times in ten is capable of immediate relief, is urged as an excuse for unnecessary lameness and deformity.

How then are we to conduct ourselves in such circumstances? The nature of the complaint points out the relief. Extension is wrong; a straight position of the thigh or leg is a degree of extension, and a still greater degree of it in proportion as the muscles are in such circumstances as to be less capable of bearing it. Change of posture then must be the remedy, or rather the placing the limb in such manner as to relax all its muscles, must be the most obvious and certain method of relieving all the ills arising from a tense state of them:

them: which change of posture will be attended with another circumstance of very great consequence; which is, that the bones may, in such posture, be immediately set, and not one moment's time be thereby lost; a circumstance of great advantage indeed! for, whatever may be the popular or prevailing opinion, it is demonstrably true, that a broken bone cannot be too soon put to rights; as must appear to every one who will for a moment consider the necessary state of the muscles, tendons, and membranes surrounding, and the medullary organs contained within a large bone broken and unset; that is, lying in an uneven, irregular manner. Can any truth be more clear, than that if the fracture, tension, and tumefaction be such that the muscles cannot bear to be stretched out in the manner necessary for setting the broken bone, without causing great pain, and perhaps bringing on still worse symptoms; the more the position of that limb makes its muscles approach toward a state of tension, the less likely it must be that such symptoms should remit, and the longer it must be before the wished-for alteration can happen; and consequently, that while the accomplishment of such purpose is by every other means aimed at, the position of the limb ought most certainly to contribute to, and not to counteract it? In short, if the experiment of change of posture be fairly and properly made, the objections to immediate reduction, from tension, tumor, &c. will most frequently be found to be groundless; and the fracture will be capable of being put to rights,

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as well at first as at any distance of time afterward.

Extension having been made, and the broken ends of the bone having been placed as smooth and as even as the nature of the case will admit, the next circumstance to be attended to is the application of some medicament to the limb; particularly to the fractured part of it. In this, different people act differently. Some make use of an adhesive, or what they chuse to call a roborant plaster; some, of what is commonly called a cere-cloth; others apply spirit. vini with oil, vinegar, and white of egg; and others the spirit. mindereri, the solution of crude sal ammoniac in vinegar and water, or some such kind of medicine.

To the cere-cloth, provided it neither sticks to the skin, nor is capable of irritating it, there can be no objection; neither can there be any to all the others except the adhesive plaster; that must forever be wrong upon every rational principle. The intention in applying any kind of external medicine to a broken limb is, or ought to be, to repress inflammation, to disperse extravasated blood, to keep the skin lax, moist, and perspirable, and at the same time to afford some, though very small degree of restraint or confinement to the fracture, but not to bind or press; and it should also be calculated as much as possible to prevent itching, an herpetic eruption, or an erysipelatous efflorescence. Adhesive plasters of all kinds, let the composition of them be what it may, are from this one quality the least likely to contribute to any of the
good

good ends proposed, and the most likely to be the cause of the contrary inconveniences, which ought most carefully to be avoided. They obstruct perspiration, they heat the skin, they produce itching, eruption and inflammation; and if the fracture be quite furrounded by them, and the limb be from any cause ever so little inclined to swell, they make a tight, painful, and pernicious stricture, much greater even than a roller, and less likely to relax. At St. Bartholomew's hospital, we use a cerate made by a solution of lytharge in vinegar, which with soap, oil, and wax, is afterwards formed into such consistence as just to admit being spread without warming.

This lies very easy, repels inflammation, is not adherent, comes off clean, and very seldom if ever irritates, or causes either herpes or erysipelas. But let the form and composition of the application made to the limb be what it may, one thing is clear, viz. that it should be put on in such manner, as that it may be renewed and shifted as often as may be necessary, without moving the limb in any manner; it being certain, that when once a broken thigh or leg has been properly put to rights, and has been properly deposited on a pillow, it ought not ever to be lifted up or moved from it again without necessity, until the fracture is perfectly united; and it is as true, that such necessity will not very often occur. This may perhaps seem strange to those who are accustomed to roll simple fractures, and consequently to lift them up every three or four days,

in order to renew such kind of bandage : but the necessity of this motion arises merely from the kind of bandage made use of, and not from any circumstance of the fracture itself. That the frequent motion of a fractured limb cannot possibly contribute to the ease of the patient, will I suppose, be readily admitted ; as I suppose also it will, that when a broken limb has been once deposited in the best position possible, it is impossible to mend that position merely by taking such limb up and laying it down again ; from whence it must follow, that such kind of apparatus as necessitates the surgeon frequently to disturb the limb, cannot be so good as one that does not ; provided the latter will accomplish the same kind of cure as the former ; the truth of which position will appear in the most satisfactory manner to any who will take a view of the method in which simple fractures are treated at the before-mentioned hospital. Such application having been made as the surgeon thinks right, the next thing to be done is to put on a proper bandage.---That used by the ancients, and by the majority of the present practitioners, is what is commonly called a roller. This is of different length, according to the surgeon's choice, or as it may be used in the form of one, two, or more pieces. Hippocrates used three * ; Celsus six ; but the present people seldom use more than one. By such kind of bandage three intentions are aimed at, and said to be accomplished, viz.

* See on this subject Fab. ab Aquapendente, Wiseman, Scultetus, Hildanns, Petit, Du Verney.

viz. to confine the fracture, to repress or prevent a flux of humors, and to regulate the callos *: but whoever will reflect seriously on this matter will soon be convinced, that although some sort of bandage is necessary in every simple fracture, as well for preserving some degree of steadiness to the limb, as for the retention of the applications, yet none, nor neither of these three ends can be answered merely, or even principally, by bandage of any kind whatever: and therefore if this should be found to be true, that is, if it should appear that whatever kind of deligation be made use of, it cannot be a principal, but only an accessorial kind of assistance, and that in a small degree and very little to be depended upon, it will follow that such kind of bandage as is most difficult to be applied with justness and exactitude, such as is soonest relaxed and out of order, such as stands most frequently in need of renewal, and in such renewal is most likely to give pain and trouble, must be more improper and less eligible than one which is more easily applied, less liable to be out of order, and which can be adjusted without moving the limb.

The ancient method of applying the roller in case of simple fracture of the leg or thigh,
 WAS

* “ On applique la premiere sur l’endroit meme de la fracture.
 “ Son milieu doit repondre au centre. On fait trois tours circulaires : ce qui sert a affermir cet endroit, qui est le seul, qui ait
 “ besoin d’etre assujetti, comme etant le seul qui peut se deranger,
 “ Et a contenir le suc nouricier Et empecher, qu’il ne s’echappe trop
 “ abondamment Et trop irregulierement a l’entour de la fracture ; ce
 “ qui feroit un cal tres difforme.”

DU VERNEY

was to make * four or five turns round the fracture first, and then to continue the bandage upward and downward, until the whole limb was enveloped properly. This was done in this manner with a double view; to keep the broken ends of the bone in their place, and to prevent the influx of humour. Modern practitioners, although they have the same ends in view, generally begin their bandage from the inferior extremity of the limb, and continue it up to the top. Whether the old or the later method be followed, whether one or more rollers be made use of, the whole is executed while the limb is kept by means of the assistants in the same extended posture in which the coaptation was made, so that the whole bandage is finished before the leg is deposited on the pillow; in the doing all which, if from the tired state of the surgeon †, or, either of his assistants, or if from the awkwardness or unhandiness of any of the parties concerned, the true and exact position of the limb be at all deviated from, the ends of the bone will again be in some degree displaced, and the bandage instead of being of use will become prejudicial,

* See a particular account of this in Fab. ab Aquapendente, and in Serjeant Wiseman.

† The extraordinary length of time used by some in putting a fracture to rights, renders what I have called the *tired state of the assistants* an object of importance. The good position of the fracture depends as much or more on them than on the surgeon. If the assistant who holds the foot varies from the proper manner, I defy the surgeon to redress the fracture without the concurrence of such assistant.

judicial, by pressing hard on the inequalities of the fracture: to which let me add, that the roller, especially when applied to a leg, if it be not put on with due dexterity, that is, if it does not fit perfectly smooth and even, is the most unequal and worst kind of bandage in use.

These objections, however just, are not the least to which the roller in the case of simple fracture of the leg or thigh is liable; for, as I have already hinted, it must in a very short space of time, even while the parts surrounding the fracture are in the most tender and most painful state, be renewed, and that more than once; which renewal cannot be executed without again taking the limb off from the pillow, again committing it to the hands of assistants, and again running a risque of displacing the fracture: all which, not to mention the repetition of pain to the patient every time such operation is performed, and which must be at least every four or five days, are (as I have already said) very material objections to the roller, even in the most judicious and dexterous hands, and still more so in those of the rude and ignorant.

The prevention of a flux of humors to a broken limb, by bandage, is a common phrase; but they who use it have either no idea at all annexed to it, or a very erroneous one.

If by the points and edges of the broken bone, the muscles and membranes be unavoidably wounded and torn, or if the same kind of mischief

mischief be incurred by the inadvertence or indiscretion of the patient, or of those who assisted in getting him home, or from the violence used in extending the limb and setting the fracture, inflammation must be excited, and pain and tumefaction will be the consequence; and these will continue for some time in every fracture; but that space will be longer or shorter in different cases, and under different circumstances: evacuation, rest, and a favourable position of the limb, will, and do in general, remove all these complaints; but bandage can contribute nothing more than by keeping the applications in their proper place; so far from it, that if the bandage be a roller, it must, by the frequent necessity of its being adjusted, and the frequent motion of the limb, in some degree counteract the proper intention of cure.

The old writers are in general very precise as to the number of days during which the roller should be suffered to remain without being shifted; and the number of times which such shifting should be repeated within the first fortnight.* This exactitude is by no means necessary; but if the bandage be supposed to be of any use at all, it is obvious, that it ought
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* "Tertio die a deligatione facta, Hippocrates fascias resolvit,
" &c. Facta bona deligature & pruritu non infectante, a tertio
" usque ad septimum oportet ægrum deligatum detinere.

" Septimo membrum rursus solvendum perfundendum aqua tepida & ligandum.

to be renewed or adjusted as often as it may cease to perform the office for which it is designed, or whenever it shall be found to counteract such office; that is, as often as it shall become so slack as not to contain the fracture at all; or whenever the limb shall be so swollen, that the roller makes an improper degree of stricture; the former generally occurs every four or five days; the latter is most frequent within the first week.

In most of the writers on the subject of fractures, we also find marks or signs laid down for our information concerning the due or undue effect of the bandage on the limb. They tell us, that when that part of it which is below the termination of the roller does not swell at all, that the bandage is not sufficiently strict, and will not retain the fracture; that when the same part is considerably swollen, or tense, or inflamed, it implies, that the binding is too strait; and that a moderate degree of tumefaction is a sign that the deligation is properly executed.*

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* See on this Fab. ab Aquapendente, who speaks or rather copies the sentiments of Hippocrates and Celsus. "Terminus in stringendo debet esse bona laborantis tolerantia: ut deligatum leviter premat, & sic tum contineat & stabiliat fracturam, tum humores exprimat. Sunt etiam alia hujus signa, quæ altero die apparent; si enim æger eo die quo deligatus sentiat se valentius stringi, postero verò die tumor laxus, mollis & parvus appareat, bona est deligatio, quia jam humores a parte fracta sunt expressi. Si vero aut nullus tumor aut magnus & durus postridie in manu vel pede appareat, prava est deligatura; quia illa non continet hæc vero nimis arcta est & inflammationem movet. Id notandum fascias magis stringi debere in parte fracta, quam alibi ut pars fracta magis illæsa servetur, ab humorem defluxu."

In consequence of these precepts many practitioners look more anxiously after this degree of tumefaction, than after the true and exact position of the limb; and cannot be induced to believe, that any thing can be wrong under this appearance; although, if they would for once assume the liberty of thinking for themselves, they might be convinced, that even this degree of swelling is wrong; that it implies some kind of obstruction to the circulation, and cannot serve any good purpose; and consequently that as far as it may be supposed to be the effect of bandage, so far that bandage must be faulty.

The third purpose for which the roller is said to be used, is the regulation and restraint of the callus.

If we were to form our notion of callus by what the generality of writers have said on this subject, we should suppose, that it was not only a particular juice always ready for the purpose, but that, if not restrained and regulated by art, it would always flow in such quantity, as to create trouble and deformity; that there were specific remedies for increasing or decreasing it; and that it always required the hand and act of surgery to manage it. That the callus is so far a particular juice, as that it consists of whatever is destined to circulate through the bones for their particular nourishment, is beyond all doubt; and that this gelatinous kind of fluid is the medium by which fractures are united is as true; but that it re-

quires art to manage it, or that art is in general capable of managing and directing it, is by no means true. That this callus or uniting medium does oftentimes create tumefaction and deformity, or even lameness, is true also; but the fault in these cases does not lie in the mere redundance of such juice; it is derived from the nature of the fracture, from the inequality of it when set, and from the unapt position of the broken ends with regard to each other; nor is surgery or the surgeon any otherwise blameable in this case, than as it was or was not originally in their power to have placed them better. It is the inequality of the fracture which makes both the real and apparent redundance of callus, and the tumefaction in the place of union. When a bone has been broken transversely, or nearly so, and its inequalities are therefore neither many nor great, when such broken parts have been happily and properly coaptated, and proper methods have been used to keep them constantly and steadily in such state of coaptation, the divided parts unite by the intervention of the circulating juice, just as the softer parts do, allowing a different space of time for different texture and consistence. When the union of a broken bone under such circumstances has been procured, the place where such union has been made, will be very little perceptible, it will be no deformity, nor will it occasion any inconvenience. It will indeed be discoverable, like a cicatrix of a wound in a softer part, but there will

will be no redundance of callus, because none will be wanted; neither will there be any necessity for any particular management on the part of the surgeon, to repress or keep it in order: But when a bone has been broken very obliquely or very unequally, when the parts of a fracture are so circumstanced as not to admit of exact coaptation, when such exact coaptation as the fracture perhaps would have admitted has not been judiciously made, when from unmanageableness, inadvertence or spasm, the proper position of the limb has not been attended to or preserved, in all such cases there must be considerable inequality of surface; there must be risings on one side, and depressions on another; and in such cases the juices circulating through the bone, cannot accomplish the union in the same quantity, the same time, or in the same manner. The broken parts not being applied exactly to each other, there cannot be the same aptitude to unite; and according to the greater or lesser degree of exactitude in the coaptation, that is, according as the ends of the bones are, or have been placed more or less even with regard to each other, will the inconvenience and the deformity be; and still most where the fracture is not set at all; but the broken ends of the bone unite laterally, or by touching each other's sides. The reason of all this is so obvious, without having recourse to a particular specific juice under the name of callus, that it would be an insult upon the reader's understanding

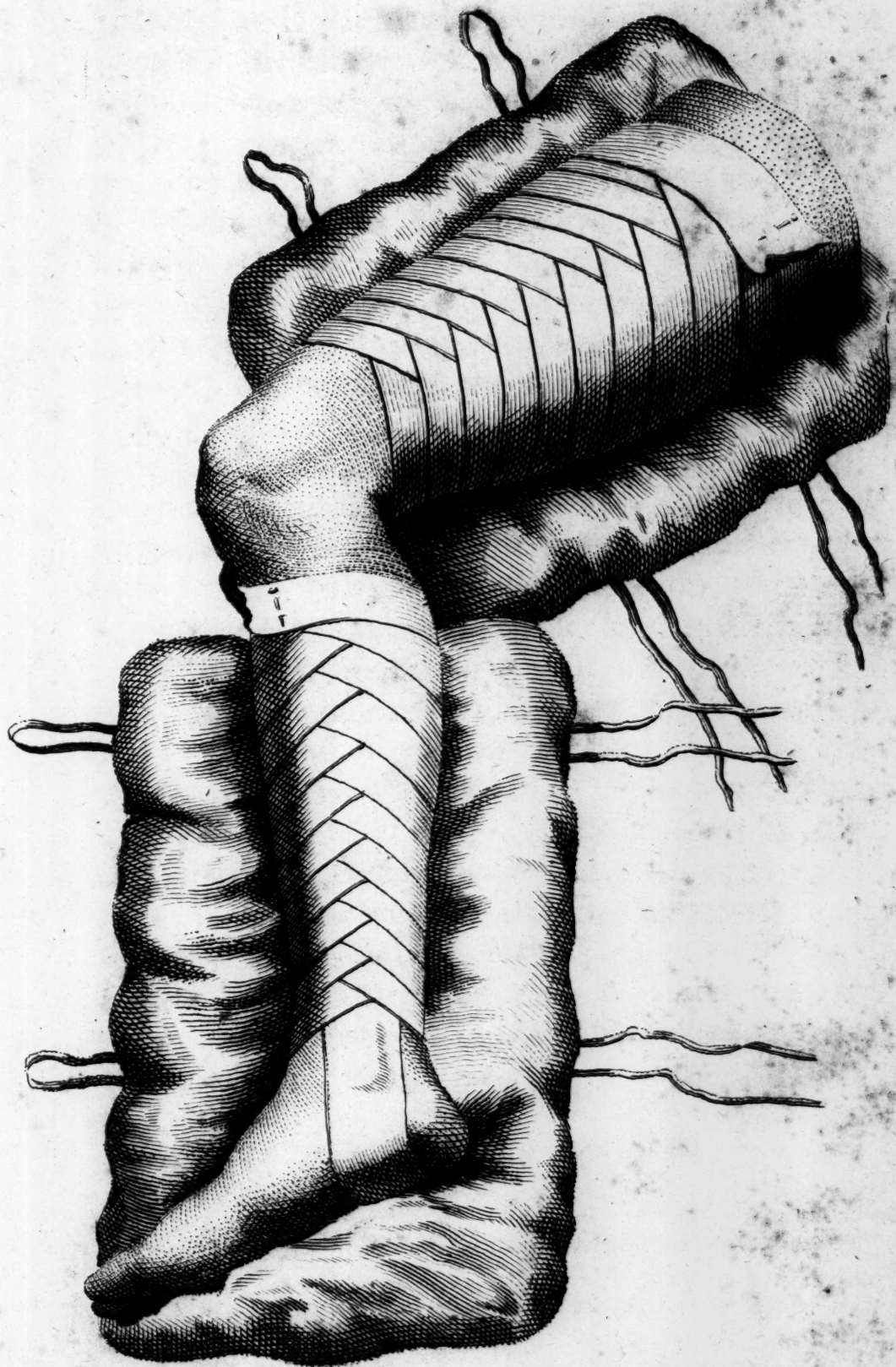
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standing to explain it farther. * The periosteum covering every fracture will remain thickened for some time, and a degree of fulness or rising will be thereby caused about the place where such fracture has been united; but time, and the use of the muscles, soon in general remove this.

In short, this doctrine of callus, considered as a particular kind of juice, and as being liable to great redundance if not prevented by art, has not only misled many people, but has often been made use of as a cover to ignorance and neglect. When lameness and deformity have been the consequence of one or both of these causes, more than of the nature and circumstances of a fracture, the callus has been found ready at hand to take the blame; and the ideal exuberance of this cement has often been urged as an excuse for real want of knowledge, or for gross neglect.

The best and most useful bandage, for a simple fracture of the leg or thigh, is what is commonly known by the name of the eighteen-tailed-bandage, or rather one made on the same principle, but with a little difference in the disposition of the pieces. The common method is to make it so, that the parts which are to surround the limb, make a right angle with that which runs lengthways under it; instead of which, if they

* On the subject of callus, the editor of Du Verney tells a story from Galen, and which himself seems not to disbelieve, viz. that a callus in a particular case, was so redundant as to transude thro' the skin, and to keep the compresses constantly wet.



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they are tacked on so as to make an acute angle, they will fold over each other in an oblique direction, and thereby fit more neatly and more securely, as the parts will thereby have more connection with and more dependance on each other. In compound fractures, as they are called, every body sees and acknowledges the utility of this kind of bandage preferable to the roller, and for very obvious and convincing reasons, but particularly because it does not become necessary to lift up and disturb the limb every time it is dressed, or every time the bandage loosens.

The pain attending motion in a compound fracture, the circumstance of the wound, and the greater degree of instability of parts thereby produced, are certainly very good reasons for dressing such wound with a bandage, which does not render motion necessary; but I should be glad to know what can make it necessary, or right, or eligible, to move a limb in the case of simple fracture? what benefit can be proposed by it? what utility can be drawn from it? When a broken bone has been well set, and the limb well placed, what possible advantage can arise from moving it? surely none; but on, the contrary, pain and probable mischief. Is it not the one great intention, to procure union? Can moving the limb every two or three days contribute to such intention? must it not on the contrary obstruct and retard it? Is not perfect quietude as necessary toward the union of the bone, in a simple as in a compound fracture? It is true, that in the one there is a wound which requires to be dressed,
and

and the motion of the limb may in general be attended with rather more pain than in the other; but does motion in the simple fracture give ease, or procure more expeditious union?

Every benefit then which can be supposed to be obtained from the use of the common bandage or roller, is equally attainable from the use of that which I have just mentioned, with one additional, and to the patient, most invaluable advantage, viz. that of never finding it necessary to have his leg or thigh once, during the cure, removed from the pillow on which it has been properly deposited. In short, to quit reasoning and to speak to fact, it is the constant practice at St. Bartholomew's, and attended with all possible success. We always use the eighteen-tailed bandage; and never move the limb to renew or adjust it.*

The parts of the general apparatus for a simple fracture, which come next in order, are the splints.

These are generally made of paste-board, wood, or some resisting kind of stuff, and are ordered to be applied lengthways on the broken limb; in some cases three, in others four; for the more steady and quiet detention of the fracture.

That splints properly made and judiciously applied are very serviceable, is beyond all doubt; but

* See the different opinions of different French practitioners, with their reasons on this subject, in Du Verney, *Traité des Maladies des Os*.

but their utility depends much on their size, and the manner in which they are applied.

In general practice, they are made of such length, as not to reach either upward or downward, so far as the roller extends; not to comprehend either the upper or the lower joint of the broken bone, and to exceed the fracture either way not many inches: they do not, for example, in the broken leg, comprehend either the joint of the knee, or the joint of the ankle, and act only on the fracture. *

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* This is the old doctrine, and has been almost universally and constantly adhered to and followed. Our forefathers, finding that such splints as they used and applied in their manner excited pain and inflammation, did not use, but forbade them until after seven days were past, and the first inflammation as they thought was over.

After this, they put them on to strengthen the fracture, as they said, and therefore made them short for that purpose only, expressly cautioning us against the only method of applying them (in the case of a broken leg) in which they can be really useful, viz. that in which they comprehend both the knee and ankle.

"Ferularum usus idem est ac pannorum ad fractum os continendum, ut maneat immotum, etiamsi membrum universum moveatur.

"Jubet Hippocrates leves esse ferulas & æquales & extrema resistas, &c.

"Sed & breviores ferulas esse præcipit ipsa vinctura, ne quando cutem proximam tentare valeant eminentem plerumque ob humores receptos, quos fasciæ exturbant. Id quoque cavere oportet ne ad ossium eminentias, quales in ima tibia & sura sunt, ferulæ pertingant, &c. &c. &c.

ORIBASIUS DE FRACTURIS.

"Sed hoc tempore (post septimum diem) vice plagularum oportet ferulas apponere.

"His utebatur Hippocrates demum post septimum diem; quia ante septimum magis urgebat intentio arcendæ inflammationis quam intentio stabiliendi fracturam; post septimum autem contra accidit."

FAB. AB AQUAPENDENTE.

In this manner of application, and of this size, they are in fact neither more or less than compresses, and compresses made of very bad materials. All the good that ever is, or that can be done by them, when of such length and so applied, might certainly be done in a better manner by a more proper kind of compress, and every disadvantage, which a hard resisting compress, injudiciously applied, is capable of producing, is probable to result from them thus used.

The true and proper use of splints is, to preserve steadiness in the whole limb, without compressing the fracture at all. By the former they become very assistant to the curative intention; by the latter they are very capable of causing pain and other inconveniences; at the same time that they cannot, in the nature of things, contribute to the steadiness of the limb.

In order to be of any real use at all, splints should, in the case of a broken leg, reach above the knee and below the ankle; should be only two in number, and should be so guarded with tow, rag, or cotton, that they should press only on the joints, and not at all on the fracture.

By this they become really serviceable; but a short splint, which extends only a little above and a little below the fracture, and does not take in the two joints, is an absurdity; and, what is worse, it is a mischievous absurdity.

By pressing on both joints, they keep not only them, but the foot steady; by pressing on the fracture only, they cannot retain it in its place,
if

If the foot be in the smallest degree displaced ; but they may, and frequently do occasion mischief, by rudely pressing the parts covering the fracture against the edges and inequalities of it.

I suppose it will be said, that although short splints do not of themselves sustain and keep steady the two joints, and consequently the limb, yet that purpose in the broken leg may be and is fulfilled by junks, fanons, and other contrivances: To which I answer, that then the short splints are in that case of no use at all, and had better be laid aside ; they should be used for no other purpose, but that of keeping the limb steady ; and if they do not answer that end, they are an incumbrance, and multiply the articles in the apparatus for a fractured leg, very unnecessarily.

In the case of a fractured os femoris, if the limb be laid in an extended posture, one splint should certainly reach from the hip to the outer angle, and another (somewhat shorter) should extend from the groin to the inner angle. In the case of a broken tibia and fibula, there never can be occasion for more than two splints, one of which should extend from above the knee to below the angle on one side, and the other splint should do the same on the other side. The manner of applying them, if the limb be deposited in a state of flexion, will come under the next article.

This, and indeed the most essential article in the treatment of a fracture is, the position of the limb.

limb. Upon the judicious or injudicious, the proper or improper execution of this, depends the ease of the patient during his confinement, and the free use and natural appearance of his limb afterward.

If I meant to describe, or if I approved (pardon the phrase) the common method of placing the broken leg and thigh in a straight manner, this would be the place to mention the many very ingenious contrivances and pieces of machinery, which practitioners, both antient and modern, have invented for the purpose of keeping the whole limb straight and steady, that is, of keeping all the muscles surrounding the fractured bone constantly upon the stretch, and at the same time of preventing any inequality in the union of it, and any shortening of the limb, in consequence of such inequality.

But as it is my intention by these sheets, to inculcate another, and as it appears to me a better disposition of the limb, in which such boxes, cradles, and pieces of machinery are not wanted, nor can be used, it is needless for me to say any thing about them.

According to this plan, the fractured leg and thigh should be deposited on the pillow, in the very posture in which the extension was made, and the fracture set, that is with the knee bent.

I have already been so explicit, or perhaps prolix, on the tense and lax state of the muscles, as depending on posture, under the head of extension, that I shall spare the reader, as well as myself,

self, a good deal of trouble by referring back to that article. All that is there urged, or that can be urged for making the extension, that is, for setting a fracture in such disposition of a limb or its muscles, is equally powerful and conclusive with regard to the manner of depositing and leaving it after it has been set. Whatever render reduction and coaptation easy, must as necessarily maintain ease during the confinement, preserve rectitude of figure, and prevent displacement. The same principle must act on both occasions, and whether the doctrine be right or wrong, considered by itself, it must be equally so in both circumstances, that is, in the manner of setting a fracture, and in the manner of depositing the limb afterward. * In the case of the fractured os humeri, the only position in which it can with any tolerable convenience to the patient be placed is, with the elbow bent, that very position which necessarily relaxes and removes all the resistance of the surrounding muscles. Daily experience evinces the utility of this, by our very seldom meeting with lameness and deformity after it, notwithstanding the prevailing apprehension of exuberant callus.

The deformity frequently consequent to the fracture of the bones of the cubit, particularly that
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* It has been said, that the straight position of a limb, by putting the muscles on the stretch, induces them to contribute to the security of the fracture against displacement. If this be the case in general, how happens it that those bones are always found most liable to be displaced when broken, and to be most difficult to keep in their proper place, which are surrounded by the most, and by the strongest muscles?

of the radius only, will generally, if not always, be found to be in proportion as the muscles concerned in the pronation and supination of the hand happen to be put more or less into a state of action, or tension by the position of the limb.

In the thigh, the case is still more obvious, as the muscles are more numerous and stronger.

The straight posture puts the majority of them into action, by which action that part of the broken bone, which is next to the knee, is pulled upward, and by passing more or less underneath that part which is next to the hip, makes an inequality or rising in the broken part, and produces a shortness of the limb.

In the fracture of both bones of the leg, the case is still the same; a straight position puts the muscles upon endeavouring to act; a moderate flexion of the knee relaxes them, and takes off such propensity.*

The disposition therefore of the broken cubit ought to be that which, by putting the hand into a middle state between pronation and supination, and by bending the fingers moderately, keeps the radius superior to the ulna; or in other words, the palm of the hand should be applied to the breast, the thumb should be superior, the little finger inferior; and the hand should be kept in this posture constantly
by

* In proportion as the fracture shall happen to be more or less oblique, the truth of this doctrine will, upon experiment, be found to be more or less apparent, as well as useful.

by means of two splints, which should reach from the joint of the elbow on each side, and should be extended below the fingers; or the same purpose may be still better answered by a simple, neat contrivance of the very ingenious Mr. Gooch of Norfolk; of which he has given a draught, and which is preferable to a common splint, by its admitting the fingers to be more easily bent.

" The position of the fractured os femoris should be on its outside, resting on the great trochanter; the patient's whole body should be inclined to the same side; the knee should be in a middle state, between perfect flexion and extension, or half bent; the leg and foot lying on their outside also, should be well supported by smooth pillows, and should be rather higher in their level than the thigh; one very broad splint of deal, hollowed out and well covered with wool,* rag, or tow, should be placed under the thigh, from above the trochanter quite below the knee; and another somewhat shorter, should extend from the groin below the knee on the inside, or rather in this posture on the upper side; the bandage should be of the eighteen-tail kind, and when the bone has been set, and the thigh well placed on the pillow, it should not without necessity, (which necessity in this method will seldom

* If the pillow on which the broken thigh is placed be not too thick, the splint may with equal advantage be placed underneath such pillow, and in many cases this will be found to be the best manner of using it.

dom occur) be ever moved from it again until the fracture is united; and this union will always be accomplished in more or less time, in proportion as the limb shall have been more or less disturbed.

In the fracture of the fibula only, the position is not of much consequence; because by the tibia remaining intire, the figure of the leg is preserved, and extension quite unnecessary; but still even here the laying the leg on its side, instead of on the calf, is attended with one very good consequence, viz. that the confinement of the knee in a moderately bent position, does not render it so incapable of flexion and use afterward, as the straight or extended position of it does, and consequently that the patient will be much sooner able to walk, whose leg has been kept in the former posture; than he whose leg has been confined in the latter.

In the fracture of both tibia and fibula, the knee should be moderately bent, the thigh, body and leg in the same position as in the broken thigh. If common splints be used, one should be placed underneath the leg, extending from above the knee to below the ankle, the foot being properly supported by pillows, bolsters, &c. and another splint of the same length should be placed on the upper side, comprehending both joints in the same manner; which disposition of splints ought always to be observed, as to their length, if the leg be laid extended in the common way, only changing the nominal position of them, as the posture

ture of the leg is changed, and calling what is interior in one case, exterior in the other ; and what is superior in one, in the other inferior.*

If Mr. Sharpe's splints be made use of, there is in one of them a provision for the more easy support of the foot and ankle, by an excavation in, and a prolongation of the lower or fibular splint, for the purpose of keeping the foot steady.

I hope that I have expressed my meaning clearly ; I should be very sorry to be mistaken, because it appears to me to be a matter of some consequence ; and if what I have said be intelligible, the reader will understand from thence, that I mean to signify that, (in my opinion) extension will in general be made with more facility, and coaptation more happily executed ; that a patient will suffer a great deal less pain during these operations, as well as during the necessary confinement for a broken leg or thigh ; and that both patient and surgeon will be less likely to be disappointed in their intention and wish, that is, that the former will be less liable to lameness or deformity, when a fractured thigh or leg has been treated

* All writers on this subject agree in giving us cautions about defending the heel, and filling up the hollow from it to the calf of the leg ; and this they do on account of the pain, excoriation, and even ulceration, which sometimes attends the straight position, with the limb resting on the heel.

Many of them have also taken notice of an accident sometimes attendant on a broken leg, but which really ought to be set to the account of the posture in which such leg is placed, more than to that of the fracture ; I mean the shrinking or wasting of the calf.

treated in the way I have described, than in the common one.

The resistance necessarily made by the muscles, joined to the great instability of parts in every species of fractured leg or thigh, except in the few where the bones are broken transversely, has constantly exercised the invention and ingenuity of practitioners, in devising means to prevent inequality in the callus as it is called, and shortness and deformity in the limb. Our books abound with draughts and descriptions of machines for this purpose; ligatures, pullies, leaden weights and fracture-boxes, so constructed as to overcome and constantly to resist that action of the muscles surrounding the broken bone, that natural tendency in them to contract, which the extended position of the limb necessarily induces. Every body who has been conversant with matters of this sort knows, that even the best of these various contrivances often prove successful; and every one who will reflect ever so little may see why they must be so. That they do prove ineffectual, the number of deformed legs and shortened thighs, which are daily met with, evinces; and that they must frequently prove so will be obvious to every one, who will consider that the effect can last no longer than the cause is continued, unless there happens to be some very favourable circumstance in the fracture itself. What I mean is this, when the reduction of the fracture is set about, the limb is put into such position, that the surrounding muscles

muscles resist the extending force very considerably, and this in proportion to their strength and number: that force is continued and increased till the muscles give way, and the resistance being overcome, an opportunity is thereby obtained of placing the ends of the fracture in as apt position with regard to each other as the nature of it will admit. If the fracture be of the transverse kind, that is, if the ends of the broken bone be large, and afford a good deal of space for contact with each other, such apposition will contribute a good deal to the keeping the limb steady, and the fracture even; but if the fracture be of the oblique kind, if there be several loose pieces, and consequently neither large contact nor stability from the apposition, or if due extension has not been made, or could not, or if the ends of the bones have not been judiciously and properly set, the muscles will act as soon as the extension is relaxed, the fracture will be more or less displaced according to the nature of it, the limb will be shortened, the time of union will be prolonged, and the place of it (the callus, as it is called) will be in proportion more or less unequal.

I take it for granted that it will be asked, Have not our ancestors in all times happily redressed fractured legs and thighs, by the method which they have delivered down to us, and which in the preceding pages I have taken the liberty to object to? have not such limbs frequently been rendered as straight, as

useful, and as little deformed as possible? I answer, most certainly, yes; it is an undoubted truth and cannot be denied. But in my turn let me be permitted to ask, Whether in the same method great and even unfurmountable difficulty is not frequently met with? whether in many cases the act of setting, as it is called, is not excessively painful at the time, and productive of inflammation and other disagreeable symptoms afterward? and whether in spite of all care, of every contrivance, of every species of machinery which has yet been used, broken thighs and legs are not often, very often left deformed, crooked and shortened, and that merely from the action of the muscles, and the obliquity or shattered state of the fracture? The fact is notorious, and the sole question is, Whether or no a different disposition of the parts, preventing such action and such resistance, will in many instances prevent these evils? to which, from repeated experience, I answer, yes. If this should be found to be the case in general, of which I make no doubt, that is, if by this method, many of such unfortunate cases, as in the common method of treatment disappoint both patient and surgeon, should be found in general to succeed so well as to satisfy both, it will prove all I wish it should prove. Superior utility and more frequent success are all I contend for.

Many people did very well under amputation before the double incision was practised; but

but is the double incision therefore no improvement? The operation for the bubonocoele may be performed with that clumsy instrument the probe-scissars, but is the bistoury therefore not preferable? A surgeon may cut off some ounces, or even pounds, of flesh from a patient's backside, in order to cure a sinus, but is the cure by the simple division of that sinus therefore not easier or more expeditious? Neither of these can (I think) be proved, unless it can at the same time be proved, that pain is no evil, confinement not at all irksome, and that deformity and elegance of figure are synonymous terms.

Let not the reader fancy that I would dare to amuse him with speculation, or merely specious reasoning on a subject like this. What I have said is from experience, repeated experience both of myself and of others, for a considerable length of time past, and on a great variety of subjects; from an experience which has perfectly satisfied me, and I think will every man who will make the trial fairly and candidly.---I do not pretend to say, that by these means every kind of broken bone will infallibly and certainly be brought to lie smooth, even, and of proper length; if I did, they who are versed in these things, would know that I said too much; but I will say, (what is sufficient for my purpose) that it will not only succeed in all those, in which the old method can ever be successful; but also in the majority of those in which it is not, nor in the na-

ture of things can. In those fortunate cases, in which either method will do, the old one is fatiguing, inconvenient, and even sometimes offensive, from the supine and confined posture of the patient; whereas that which is here proposed, gives the patient much greater liberty of motion for every purpose either of choice or necessity, and in many of those cases, wherein the old method proves most frequently so far successful, as to leave the limb short, lame, or deformed; I say, in most of these the proposed method will not be attended with these inconveniences.

I have already said, that in most cases of broken thigh or leg, the method just described will be attended with great success: but there is one particular case in which its utility is still more conspicuous; a case which, according to the general manner of treating it, gives infinite pain and trouble both to the patient and surgeon, and very frequently ends in the lameness and disappointment of the former, and the disgrace and concern of the latter: I mean the fracture of the fibula attended with a dislocation of the tibia.

Whoever will take a view of the leg of a skeleton, will see that although the fibula be a very small and slender bone, and very inconsiderable in strength, when compared with the tibia, yet the support of the lower joint of that limb (the ankle) depends so much on this slender bone, that without it the body would not be upheld, nor locomotion performed, without hazard of dislocation every moment. The lower extremity

ty of this bone, which descends considerably below that end of the tibia, is by strong and inelastic ligaments firmly connected with the last-named bone, and with the astragalus, or that bone of the tarsus which is principally concerned in forming the joint of the ankle. This lower extremity of the fibula has, in its posterior part, a superficial sulcus for the lodgment and passage of the tendons of the peronei muscles, which are here tied down by strong ligamentous capsulæ, and have their action so determined from this point or angle, that the smallest degree of variation from it, in consequence of external force, must necessarily have considerable effect on the motions they are designed to execute, and consequently distort the foot. Let it also be considered, that upon the due and natural state of the joint of the ankle, that is, upon the exact and proper disposition of the tibia and fibula, both with regard to each other and to the astragalus, depend the just disposition and proper action of several other muscles of the foot and toes; such as the gastrocnemii, the tibialis anticus, and posticus, the flexor pollicis longus, and the flexor digitorum pedis longus, as must appear demonstrably to any man, who will first dissect, and then attentively consider these parts.

If the tibia and fibula be both broken, they are both generally displaced in such manner, that the inferior extremity, or that connected with the foot, is drawn under that part of the fractured bone which is connected with the knee; making by this means a deformed, unequal tumefaction

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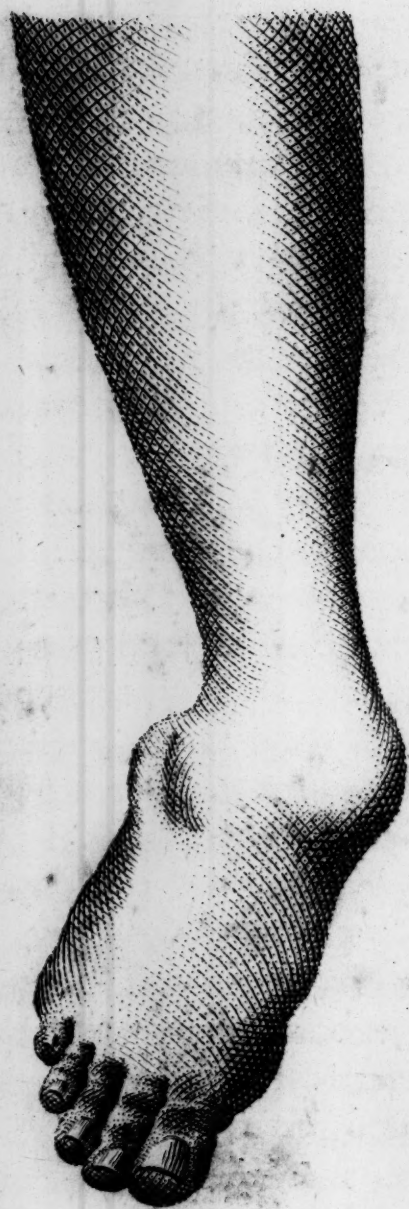
tion in the fractured part, and rendering the broken limb shorter than it ought to be, or than its fellow. And this is generally the case, let the fracture be in what part of the leg it may.

If the tibia only be broken, and no act of violence, indiscretion, or inadvertence be committed, either on the part of the patient or of those who conduct him, the limb most commonly preserves its figure and length; the same thing generally happens if the fibula only be broken, in all that part of it, which is superior to letter *A* in the annexed figure, or in any part of it between its upper extremity, and within two or three inches of its lower one.

I have already said, and it will obviously appear to every one who examines it, that the support of the body, and the due and proper use and execution of the office of the joint of the ankle, depend almost entirely on the perpendicular bearing of the tibia upon the astragalus, and on its firm connection with the fibula. If either of these be perverted or prevented, so that the former bone is forced from its just and perpendicular position on the astragalus; or if it be separated by violence from its connection with the latter, the joint, of the ankle will suffer a partial dislocation internally*; which partial dislocation cannot happen without not only a considerable extension, or perhaps laceration of the bursal ligament of the joint, which is lax and weak, but a laceration of those strong

* See the figure as above.





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tendinous ligaments, which connect the lower end of the tibia with the astragalus and os calcis, and which constitute in great measure the ligamentous strength of the joint of the ankle.

This is the case, when by leaping or jumping the fibula breaks in the weak part already mentioned, that is within two or three inches of its lower extremity. When this happens, the inferior fractured end of the fibula falls inward toward the tibia, that extremity of the bone which forms the outer angle is turned somewhat outward and inward, and the tibia having lost its proper support, and not being of itself capable of steadily preserving its true perpendicular bearing, is forced off from the astragalus inwards, by which means the weak burfal, or common ligament of the joint, is violently stretched, if not torn, and the strong ones, which fasten the tibia to the astragalus and os calcis, are always lacerated; thus producing at the same time a perfect fracture and a partial dislocation, to which is sometimes added a wound in the integuments, made by the bone at the inner angle. By this means, and indeed as a necessary consequence, all the tendons which pass behind or under, or are attached to the extremities of the tibia and fibula or os calcis, have their natural direction and disposition so altered, that instead of performing their appointed actions, they all contribute to the distortion of the foot, and that by turning it outward and upward.

When this accident is accompanied, as it sometimes is, with a wound of the integuments of the inner angle, and that made by the protrusion of
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the bone, it not infrequently ends in a fatal gangrene, unless prevented by timely amputation, though I have several times seen it do very well without. But in its most simple state, unaccompanied with any wound, it is extremely troublesome to put to rights, still more so to keep it in order, and unless managed with address and skill, is very frequently productive both of lameness and deformity ever after.

After what has been said, a farther explanation why this is so is unnecessary. Whoever will take even a cursory view of the disposition of the parts, will see that it must be so. By the fracture of the fibula, the dilatation of the burfal ligament of the joint, and the rupture of those which should tie the end of the tibia firmly to the astragalus and os calcis, the perpendicular bearing of the tibia on the astragalus is lost, and the foot becomes distorted; by this distortion the direction and action of all the muscles already recited are so altered, that it becomes (in the usual way of treating this case) a difficult matter to reduce the joint, and, the support of the fibula being gone, a more difficult one to keep it in its place after reduction. If it be attempted with compress and strict bandage, the consequence often is a very troublesome, as well as painful ulceration of the inner angle, which very ulceration becomes itself a reason why such kind of pressure and bandage can be no longer continued; and if the bone be not kept in its place, the lameness and deformity are such, as to be very fatiguing to the patient, and to oblige him to wear a shoe with an
iron,

iron, or a laced buskin, or something of that sort, for a great while, or perhaps for life.

All this trouble, pain, difficulty, and inconvenience are occasioned by putting and keeping the limb in such position as necessarily puts the muscles into action, or into a state of resistance, which in this case is the same. This occasions the difficulty in reduction, and the difficulty in keeping it reduced; this distorts the foot, and by pulling it outward and upward makes that deformity, which always accompanies such accident; but if the position of the limb be changed, if by laying it on its outside, with the knee moderately bent, the muscles forming the calf of the leg, and those which pass behind the fibula and under the os calcis, are all put into a state of relaxation, and non-resistance, all this difficulty and trouble do in general vanish immediately; the foot may easily be placed right, the joint reduced, and by maintaining the same disposition of the limb, every thing will in general succeed very happily, as I have many times experienced.

Two kinds of fracture there are, and only two that I can recollect (relative to the limbs) which do not admit of the bent position of the joints, I mean that of the processus olecranon at the elbow, and that of the patella; in these a straight position of the arm and leg is necessary; in the former to keep the fractured parts in contact till they are united, in the latter to bring them as near to each other as may best serve the purpose of walking afterward.*

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* Although a straight position of the limb is necessary for the broken patella, yet this very position becomes so upon the same principle

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With regard to the fracture of the patella, an opinion has long and generally prevailed, which seems to me to have no foundation in truth, or (when duly considered) even in probability; it is, that the great degree of stiffness in the joint of the knee, which is sometimes found to be the consequence of this kind of fracture, is owing to, or produced by, a quantity of callus falling into it from the edges of the broken bone, and that the nearer the broken pieces are brought to each other, the more likely such consequence is.

Every part of this doctrine seems equally absurd. In the first place, the fractured bone is by no means capable of supplying such a quantity of callus as to produce this end, unless it may be supposed to run from it as solder from
a plumber's

principle, as renders the bent posture most advantageous in the broken tibia and femur, viz. the relaxation of the muscles and tendons attached to the fractured bone.

Whoever will for a moment attend to the disposition of the pieces in a patella, which has been broken transversely, will see how little necessary or useful the many contrivances of bandages, straps, compresses, buckles, buttons, &c. to be found in writers are, especially all that part of them which are applied to the inferior fragment.

By the action of the united tendons of the extensores muscles of the leg, the superior fragment is pulled upward and separated from the inferior, but the latter remains nearly, if not absolutely, where it was before the accident; there is nothing to act upon it, and therefore it cannot, nor does it move.

The extension of the leg puts the muscles attached to the upper part of the broken bone into a state of relaxation, and prevents their acting; and though a small compress just above this piece, with a moderate bandage may be useful toward retaining it, yet it is the position of the leg which must keep the broken piece down, and effect the cure.

a plumber's ladle; in the second place, if this was the case, the most likely and indeed the only probable way of preventing the deposition of such juice, must be by bringing the broken pieces into close contact; and in the third place, there is no authority from the appearance of such joints after death, (at least as far as my experience goes) to suppose this to be the case, or to countenance such opinion. The cause therefore of this rigidity, which is now and then found to attend the broken patella must be sought for elsewhere, viz. in the long rest and confinement of the joint, as a means used by many to procure exact union; in mischief done to the ligament, which is formed by the united tendons of the four extensor muscles of the leg, at the time of and by the fracture; and in the nature of the fracture itself, that is, the manner in which the bone shall happen to be broken.

But, be all this as it may, the fact undoubtedly is, that they walk best after such accident, whose patella has been broken transversely, and that into two nearly equal fragments; whose confinement to the bed has been short, that is no longer than while the inflammation lasted; whose knee, after such period, has been daily and moderately moved; and in whom the broken pieces are not brought into exact contact, but lie at some small distance from each other.

I cannot take leave of this subject of simple fractures, without mentioning a circumstance relative to them, which although, when rightly understood, is of little or no importance, yet by being

ing misunderstood, becomes frequently of considerable consequence.

I mean, the use of the term, *rising end of a broken bone*.

By the expression, any one unacquainted with these things would be inclined to think, that the prominent part of a broken bone rose, or was elevated from its natural place; and became by such rising superior to the other part or extremity of the fracture. This would certainly be the idea of an ignorant person, and as such would be of little consequence; but by the practice of many, who call themselves surgeons, it is as certainly their idea also, and this renders it a matter of great consequence. Many instances are producible, in which our conduct is in great measure regulated by the language which we use. Having no ideas annexed to our words, leads us into absurdity and unintelligibility, but false ones influence us still more, and frequently produce very material errors.

The fistula lachrymalis, the fistula in perinaeo, and that in ano, are glaring proofs of this, and my present subject is full as much so: for upon the erroneous idea annexed to the term *rising end*, stands all the absurd practice of compress, bolster, and strict bandage in the cases of simple fracture.*

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* I was some few years ago carried by a surgeon, since dead, to see a contrivance of his own to keep down the rising end of a broken tibia. It was somewhat upon the principle of Petit's tourniquet, and

The truth is, that there is really no *rising end* to a broken bone; I mean, when applied, as the term usually is, to the leg, thigh, and clavicle. There is indeed a superior or prominent end or part, and an inferior or depressed one, but the former of these is in its proper place, from which it cannot by art be moved; and the latter, which is not in its proper place, is very capable by art of being put into it.

Perhaps this may to some appear a mere play of words, a nominal distinction, without a real difference; but when the influence, which a right or wrong idea of this produces on practice is attended to, the consequence will be obvious and serious.

When a collar bone, os femoris, or tibia and fibula are broken, by the action of the muscles, by the motions of the patient, and by the mere weight of the inferior part of the arm, thigh, or leg, the fractured ends of such bones are displaced, and always displaced in such manner, that the inequality occasioned necessarily by such displacement, proceeds from the inferior end of the fractured bone being retracted or drawn under the superior: this produces a tumefaction or unequal rising, and the upper extremity of the fracture is therefore called the rising end of it. Now the man who regards this rising end as that part of the fracture
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and calculated to act by compression. I told him my opinion freely, but the inventor was wedded to his invention; and the first simple fracture he applied it to, he thereby converted into a compound one, by pressing the bone through the skin.

which has by such rising got out of its place, and not as having accidentally become the prominent part merely by the insinuation or retraction of the other part underneath it, will go to work with bolster, compress, and bandage, in order to bring and keep such end down; by which means he will give his patient considerable pain, and while he depends on such means alone, will most certainly be frustrated in his intention and expectation, the means not being adequate to the proposed end. But the man who looks on this in the true light, that is, who looks on the superior part, as being in its proper place, and the inferior, as being displaced by the weight of the limb, and the action of the muscles, will know, that by the mere position of such limb, he shall be able to remedy all the inconvenience and deformity, as far as they are by art capable of remedy, without the parade or the fatigue of useless apparatus.

He will, for example, know that the prominent part of a broken clavicle, that part of it which is next to the sternum, is just where it should be; and that the inferior part, that which is connected with the scapula, is out of its place, by being drawn down by the weight of the arm; and therefore instead of loading, as is usual, the prominent part with quantities of compress, which never can do any service, he, by a proper elevation of the arm, will bring the lower end upward into contact with the other; and thereby, with very little trouble,

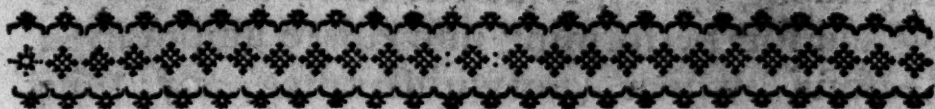
trouble, easily accomplish what he never can do in any other manner, however operose.

The same thing will happen from the same principles in the leg and thigh; a prominence, or a rising end, there always will be, but that rising end is never to be brought down by any pressure from compress or bandage; the fallen or inferior one must always be brought up to it by the proper position of the rest of the limb: this will always remove the inequality as far as it is removable, and nothing else can.*

* In a perfect regular treatise on this subject, it would be right to take notice of what may be called the infortunia or accidental evils, which sometimes accompany even simple fractures; such are, disease arising from injury done to the medullary membrane, within the bones, in bad habits: hæmorrhage, or a species of spurious aneurism, from a wound of the interosseal artery, between the tibia and fibula, or of either of the carpal arteries: mischief from the fracture becoming accidentally the seat of the crisis of a fever, deficiency of callus, or the accident of the broken bone not uniting: the fractured limb becoming the seat of an erysipelas, terminating in a slough of the common membrane and periosteum: the gelatinous juice or callus, which should unite the fracture, being in so morbid a state, as to produce a kind of caries with exostosis, instead of its doing its proper duty, &c. Of all these there are examples, but they do not come within the plan which I prescribed to myself when I began these papers.

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COMPOUND FRACTURES.

I Use the term compound fracture in the sense in which the English have always used it ; that is, to imply a broken bone complicated with a wound.

In this kind of case the first object of consideration is, whether the preservation of the fractured limb can, with safety to the patient's life, be attempted ; or, in other words, whether the probable chance of destruction, from the nature and circumstances of the accident, is not greater than it would be from the operation of amputation. Many things may concur to make this the case. The bone or bones being broken into many different pieces, and that for a considerable extent, as happens from broad wheels, or other heavy bodies of large surface, passing over, or falling on such limbs ; the skin, muscles, tendons, &c. being so torn, lacerated and destroyed, as to render gangrene and mortification the most probable and most immediate consequence ; the extremities of the bones forming a joint being crushed, or as it were comminuted, and the ligaments

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connecting such bones being torn and spoiled, are, among others, sufficient reasons for proposing and for performing immediate amputation. Reasons, which (notwithstanding any thing that may have been said to the contrary) long and reiterated experience has approved, and which are vindicable upon every principle of humanity, or chirurgic knowledge.

When a surgeon says, that a limb, which has just suffered a particular kind of compound fracture, ought rather to be immediately cut off, than that any attempt should be made for its preservation, he does not mean by so saying, that it is absolutely impossible for such limb to be preserved at all events; he is not to be supposed to mean so much in general, though sometimes even that will be obvious; all that he can truly and justly mean is, that from the experience of all time it has been found, that the attempts to preserve limbs so circumstanced, have most frequently been frustrated by the death of the patients, in consequence of such injury; and that from the same experience it has been found, that the chance of death from amputation is by no means equal to that arising from such kind of fracture.

Every man knows, that apparently desperate cases are sometimes cured; and that limbs so shattered and wounded, as to render amputation the only *probable* means for the preservation of life, are now and then saved. This is an uncontroverted fact, but a fact which proves very little against the common opinion;

opinion ; because every man of experience also knows, that such escapes are very rare, much too rare to admit of being made precedents, and that the majority of such attempts fail.*

This consideration relative to amputation is of the more importance, because it most frequently requires immediate determination ; every minute of delay is, in many instances, to the patient's disadvantage ; and a very short space of time indeed, frequently makes all the difference between probable safety and fatality. If these cases in general would admit of deliberation for two or three days, and during that time such circumstances might be expected to arise, as ought necessarily to deter-

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* The baron Van Swieten, writing as many others have done, that is, theoretically on surgery, advises us, in the case of very bad compound fractures, which may most probably require amputation, to defer the operation, until we have tried the force of antiseptic fomentations and applications of like kind for two or three days ; and this opinion and advice he builds, in some measure, on a remarkable success of La Motte, in a seemingly desperate case, of a man's leg mashed by the wheel of a heavy carriage.

That De La Motte's patient escaped, I make no doubt, because he has said so ; but the surgeon shewed much more rashness in attempting to save such a limb, than he would have done in the amputation of it ; the operation would have been the more justifiable practice.—With regard to the baron's advice, to stay two or three days, I take the liberty to add, that if you do that, stay several more ; for at the end of that time (I mean two or three days) the patient will have very little chance indeed from the operation, much less than he would have had at the time of the accident.

I should be very sorry to be thought a patron or an adviser of rashness or cruelty ; but in what I have here said, I believe I shall have every man in the profession, who has either true humanity or sound judgment founded on experience, on my side.

mine the surgeon in his conduct, without adding to the patient's hazard, the difference would be considerable; the former would not seem to be so precipitate in his determination, as he is frequently thought to be; and the latter, being more convinced of the necessity, would submit to it with less reluctance. But unhappily for both parties, this is seldom the case; and the first opportunity having been neglected or not embraced, we are very frequently denied another. Here therefore the whole exertion of a man's judgment is required, that he may neither rashly and unnecessarily deprive his patient of a limb, nor through a false tenderness or timidity, suffer him to perish, by endeavouring to preserve such limb. Some degree of address is also necessary upon such occasion, in order to convince the patient, that what seems to be determined upon hastily and with precipitation, will not safely admit of longer deliberation.

The limb being thought capable of preservation, the next consideration is the reduction of the fracture. The ease or difficulty attending this depends, not only on the general nature of the case, but on the particular disposition of the bone with regard to the wound.

If the bone be not protruded forth, the trouble of reducing and of placing the fracture in a good position, will be much less than if the case be otherwise; and in the case of protrusion or thrusting

thrusting forth of the bone or bones, the difficulty is always in proportion to the comparative size of the wound, through which such bone has passed. In a compound fracture of the leg or thigh, it is always the upper part of the broken bone which is thrust forth. If the fracture be of the transverse kind, and the wound large, a moderate degree of extension will in general easily reduce it; but if the fracture be oblique, and terminates, as it often does, in a long sharp point, this point very often makes its way through a wound no larger than just to permit such extension. In this case, the very placing the leg in a straight position, in order to make extension, obliges the wound or orifice to gird the bone tight, and makes all that part of it, which is out of such wound, press hard on the skin of the leg underneath it. In these circumstances, all attempts for reduction in this manner will be found to be impracticable; the more the leg is stretched out, the tighter the bone will be begirt by the wound, and the more it will press on the skin underneath.

Upon this occasion, it is not very unusual to have recourse to the saw, and by that means to remove a portion of the protruded bone.

I will not say that this is always or absolutely unnecessary or wrong, but it most certainly is frequently so. In some few instances, and in the case of extreme sharp-pointedness of the extremity of the bone, it may be, and undoubtedly

edly is right, but in many instances, it is totally unnecessary.

The two most proper means of overcoming this difficulty are, change of posture of the limb, and enlargement of the wound. In many cases the former of these, under proper conduct, will be found fully sufficient; and where it fails, the latter should always be made use of. Whoever will attend to the effect, which putting the leg or thigh (having a compound fracture and protruded bone) into a straight position always produces; that is, to the manner in which the wound in such position girds the bone, and to the increased difficulty of reduction thereby induced, and will then, by changing the posture of such limb from an extended one, to one moderately bent, observe the alteration thereby made, in both the just-mentioned circumstances, will be satisfied of the truth of what I have said, and of the much greater degree of ease and practicability of reduction in the bent, than in the extended position, that is, in the relaxed, than in the stretched state of the muscles. Reduction being found impracticable, either by extension or change of posture, the obvious and necessary remedy for this difficulty is enlargement of the wound. This to some practitioners, who have not seen much of this business, appears a disagreeable circumstance, and therefore they endeavour to avoid it; but their apprehensions are in general groundless and ill-founded; in enlarging the wound there is neither difficulty nor danger, it is the skin only which can require division, and in making such wound there can be

no possible hazard. It is needless to say that the division should be such as to render reduction easy; or to remind the practitioner, that such enlarged opening may serve very good future purposes, by making way for the extraction of fragments, and the discharge of matter, sloughs, &c.

If the bone be broken into several pieces, and any of them be either totally separated, so as to lie loose in the wound, or if they be so loosened and detached as to render their union highly improbable, all such pieces ought to be taken away; but they should be removed with all possible gentleness, without pain, violence or laceration, without the risque of hæmorrhage, and with as little poking into the wound as possible. If the extremities of the bone be broken into sharp points, which points wound and irritate the surrounding parts, they must be removed also. But the whole of this part of the treatment of a compound fracture should be executed with great caution; and the practitioner should remember, that if the parts surrounding the fracture be violated, that is, be torn, irritated, and so disturbed as to excite great pain, high inflammation, &c. it is exactly the same thing to the patient, and to the event of the case, whether such violence be the necessary consequence of the fracture, or of his unnecessary, and awkward manner of poking into, and disturbing the wound. The great objects of fear and apprehension in a compound fracture (that is, in the first or early state of it) are, pain, irritation, and inflammation; these are to be avoided, prevented,
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ed, and appeased by all possible means, let every thing else be as it may ; and although certain things are always recited, as necessary to be done, such removal of fragments of bone, of foreign bodies, &c. &c. &c. yet it is always to be understood, that such acts may be performed without prejudicial or great violence, and without adding at all to the risque or hazard necessarily incurred by the disease.

Reduction of or setting a compound fracture is the same as in the simple ; that is, the intention in both is the same, viz. by means of a proper degree of extension to obtain as apt a position of the ends of the fracture with regard to each other, as the nature of the case will admit, and thereby to produce as perfect and as speedy union as possible.

To repeat in this place what has already been said under the head of extension, would be tedious and unnecessary. If the arguments there used for making extension, with the limb so moderately bent as to relax the muscles, and take off their power of resistance, have any force at all, they must have much more when applied to the present case: if it be allowed to be found very painful to extend, or to put or keep on the stretch, muscles which are not at all or but slightly wounded, and only liable in such extension to be pricked and irritated, it is self-evident that it must be much more so when the same parts are torn and wounded considerably ; when the ends of the fractured bone have made their way quite thro' them,
divided

divided the skin, and laid all open to the access of the air.

Every consequence which does or may be supposed to flow from wound, pain, or irritation, in consequence of violence, must necessarily be much greater, when a lacerated wound, and that made by the bone, is added to the fracture; not to mention the ills arising from extending or stretching out muscles already torn or half divided.

One moment's reflection must be sufficient to convince any reasonable man; but experience is the only proper test of all these kinds of things. Let this method of treatment then, be fairly and properly subjected to it; and if the great advantage of the one over the other does not appear, that is, if the less sensation of pain by the patient, and the more happy, more perfect, and more expeditious accomplishment of his purpose by the surgeon, do not determine greatly in favour of relaxed position, I am, and have for a considerable length of time, been greatly mistaken.

The wound dilated, (if necessary) loose pieces removed, (if there were any) and the fracture reduced, and placed in the best possible position, the next thing to be done is to apply a dressing.

On this subject a great deal has been said by writers, particularly by such of them as have implicit faith in external applications; but, in order to be able to execute this part of the process properly, a man has only to ask himself, What are the intentions which, by any kind of dressing
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to a compound fracture, he means to aim at the accomplishment of? And a rational answer to this will give him all that he can want to know.

The dressing necessary in a compound fracture is of two kinds, viz. that for the wound, and that for the limb. By the former, we mean to maintain a proper opening for the easy and free discharge of gleet, sloughs, matter, extraneous bodies, or fragments of bone, and this in such manner, and by such means, as shall give the least possible pain or fatigue, shall neither irritate by its qualities, nor oppress by its quantity, nor by any means contribute to the detention or lodgment of what ought to be discharged. By the latter, our aim should be the prevention or removal of inflammation, in order, if the habit be good, and all other circumstances fortunate, that the wound may be healed, by what the surgeons call the first intention, that is, without suppuration or abscess, or that not being practicable, that gangrene and mortification, or even very large suppuration may be prevented, and such a moderate and kindly degree of it established, as may best serve the purpose of a cure. The first therefore, or the dressing for the wound, can consist of nothing better, or indeed so good, as soft dry lint, laid on so lightly as just to absorb the sanies, but neither to distend the wound, or be the smallest impediment or obstruction to the discharge of matter. This lint should be kept clear of the edges, and the whole of it should be covered with a pledgit spread with a soft easy digestive. The times of dressing must

must be determined by the nature of the case ; if the discharge be small or moderate, once in twenty-four hours will be sufficient ; but if it be large, more frequent dressing will be necessary, as well to prevent offence, as to remedy the inconveniences arising from a great discharge of an irritating sharp sanies.

The method of treating the limb, with a view to the prevention of such accidents and symptoms, as pain, inflammation, and laceration of parts are likely to produce, is different with different practitioners ; some using from the very first, relaxing, greasy, applications ; others applying medicines of very different nature. Both these may be right conditionally, that is, according to different circumstances in the case, but they cannot be equally so in the same circumstances.

Many practitioners are accustomed to envelope compound fractures in a soft, warm, relaxing cataplasm from the very first ; whether the limb be in a tense swollen state, or not. This, if I may take the liberty of saying so, appears to me to be injudicious. When from neglect, from length of time passed without assistance, from misconduct or drunkenness in the patient, from awkwardness and unhandiness in the assistants, or from any other cause, a tension has taken possession of the limb, and it is become tumid, swollen and painful, a warm cataplasm is certainly the best and most proper application that can be made, and that for very obvious reasons ; the state of the parts under these circumstances is such, that immediate union is impossible, and nothing but a
free

free and plentiful suppuration can dissipate or remove impending mischief; every thing therefore which can tend toward relaxing the tense, swollen, and irritable state of the parts concerned, must necessarily be right; the one thing aimed at (plentiful suppuration) cannot be accomplished without it. But when the parts are not in this state, the intention seems to be very different. To relax swollen parts, and to appease pain and irritation by such relaxation, is one thing; to prevent inflammatory defluxion and tumefaction is certainly another; and they ought to be aimed at by very different means. In the former, a large suppuration is a necessary circumstance of relief, and the great means of cure; in the latter it is not, and a very moderate degree of it is all that is required. The warm cataplasm therefore, although it be the best application that can be made use of in the one case, is certainly not so proper in the other, as applications of a more discutient kind, such as mixtures of spirit. vini, vinegar and water, with crude sal ammoniac, spirit. Mindere-ri, acet. litharg. and medicines of this class, in whatever form the surgeon may chuse. By these, in good habits, in fortunately-circumstanced cases, and with the assistance of what should never be neglected, I mean phlebotomy, and the general antiphlogistic regimen, inflammation may sometimes be kept off, and a cure accomplished, without large collections or discharges of matter, or that considerable degree of suppuration, which though necessary in some cases, and almost unavoidable in others, are and must be rather promoted
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and encouraged than retarded or prevented, by warm relaxing applications of the poultice kind.

Compound fractures in general require to be dressed every day ; and the wounded parts not admitting the smallest degree of motion without great pain, perfect quietude becomes as necessary as frequent dressing.

The common bandage therefore (the roller) has always in this case been laid aside, and what is called the eighteen-tailed bandage substituted, very judiciously, in its place. Of this I have already spoken so largely, as to make repetition unnecessary.

Splints, that is, such short ones as are most commonly made use of in simple fractures, are by all forbid in the compound, and that for the same reason which ought to have prevented them from having ever been used in the former, viz. because the probable good to be derived from them can be but little ; and the probable mischief is obvious and considerable.

But although short splints are for many reasons palpably improper, in both cases, yet those of proper length, those which reach from joint to joint, comprehend them both, and applied on each side of the leg only, are very useful both in the simple and in the compound fracture, as they may thus applied, be made to keep the limb more constantly steady and quiet, than it can be kept without them.

With regard to position of the limb, I have already been so explicit, when speaking of the simple
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ple fracture, that to say any thing more about it here, would be an abuse of the reader's time and patience. The only, or the material difference between a simple and a compound fracture, as far as relates to this part of the treatment, is, that as the parts surrounding the broken bone in the latter are more injured, and consequently more liable to irritation, pain, inflammation, and all their consequences, therefore every method and means, by which the alleviation of such symptoms, and the prevention of such consequences can be obtained, is still more necessary and requisite. Among these the posture of the limb is so principal a circumstance, that without its concurrence every other will be fruitless. The points to be aimed at are, the even position of the broken parts of the bone, and such disposition of the muscles surrounding them, as is most suitable to their wounded, lacerated state, as shall be least likely to irritate them, by keeping them on the stretch, or to produce high inflammation, and at best large suppuration. These, I say, are the ends to be pursued; and how much the position of the limb does, and must necessarily contribute to the advantage or disadvantage just recited, must be so obvious to any body capable of reflection, that nothing more need be said about it.

At the beginning of these sheets, I have said, that it was not my intention to write a regular treatise, but only to throw out a few hints, which I hoped might prove useful to such as
have

have not yet received better information. The part of my subject at which I am now arrived, does not indeed admit of much more : a few general precepts are all which a writer can give ; the particular method of conducting each particular case, must be determined by the nature of that case, and by the judgment of the surgeon.

Every body knows, or ought to know, that these cases, of all others require at first the most rigid observance of the antiphlogistic regimen ; that pain is to be appeased, and rest obtained, by anodynes ; that inflammation is to be prevented or removed, by free and frequent bleeding, by keeping the body open, and by the administration of such medicines as are best known to serve such purposes.--- And that, during this first state or stage, the treatment of the limb must be calculated, either for the prevention of inflammatory tumefaction, by such applications as are in general known by the title of discutients ; or, such tumor and tension having already taken possession of the limb, that warm fomentation, and relaxing and emollient medicines. are required.

If these, according to the particular exigence of the case, prove successful, the consequence is, either a quiet easy wound, which suppurates very moderately, and gives little or no trouble ; or a wound, attended at first with considerable inflammation, and that producing large suppuration, with great discharge and
troublesome

troublesome formation and lodgment of matter. If, on the other hand, our attempts do not succeed, the consequence is gangrene and mortification.

These are the three general events or terminations of a compound fracture; and according to these must the surgeon's conduct be regulated.

In the first instance, he has indeed nothing to do but to avoid doing mischief, either by his manner of dressing, or by disturbing the limb. Nature let alone will accomplish her own purpose; and art has little more to do than to preserve the due position of the limb, and to take care that the dressing applied to the wound proves no impediment.

In the second stage, that of formation and lodgment of matter, in consequence of large suppuration, all a surgeon's judgment will sometimes be required in the treatment both of the patient and his injured limb. Inlargement of the present wound, for the more convenient discharge of matter; * new or counter-openings for the same purpose, or for the extraction of fragments of broken or exfoliated bone, will very frequently be found necessary,
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* It is a practice with some, from a timidity in using a knife, to make use of bolsters and plaster-compresses for the discharge of lodging matter. Where another, or a counter-opening can conveniently and safely be made, it is always preferable; the compress sometimes acting diametrically opposite to the intention with which it is applied, and contributing to the lodgment by confining the matter; beside which, it requires a greater degree of pressure to make it efficacious, than a limb in such circumstances generally can bear.

and must be executed. In the doing this, care must be taken that what is requisite be done, and no more; and that such requisite operations be performed with as little disturbance and pain as possible; the manner of doing business of this kind, will make a very material difference in the sufferings of the patient.

Very contrary, or at least very different intentions, seem to me to require the surgeon's very particular attention in the two parts of this stage of the disease.

Previous to large suppuration, or considerable collections and lodgments of matter, tumefaction, induration, and high inflammation, attended with pain, irritation, and fever, require evacuation by phlebotomy, an open belly, and antiphlogistic remedies, as well as the free use of anodynes, and such applications to the limb as may most serve the purpose of relaxation.

But the matter having been formed and let out, and the pain, fever, &c. which were symptomatic thereof, having disappeared or ceased, the use and purpose of such medicines and such applications ceases also, and they ought therefore to be discontinued. By evacuation, &c. the patient's strength has necessarily (and indeed properly) been reduced; by cataplasm, &c. the parts have been so relaxed as to procure an abatement or cessation of inflammation, a subsidence of tumefaction, and the establishment of a free suppuration; but these ends once fairly and fully answered, another

ther intention arises, which regards the safety and well-doing of the patient, nearly, if not full as much as the former, which intention will be necessarily frustrated by pursuing the method hitherto followed. The patient now will require refectio and support, as much as he before stood in need of reduction; and the limb, whose indurated and inflamed state hitherto required the emollient and relaxing poultice, will now be hurt by such kind of application, and stand in need of such as are endued with contrary qualities, or at least such as shall not continue to relax. Good, light, easily digested nutriment, and the Peruvian bark, will best answer the purpose of internals; the discontinuation of the cataplasms, and the application of medicines of the corroborating kind, are as necessary with regard to externals.*

In short, if there be any rationale in the use of the cataplasm in the first stage, its impropriety in the second must be evident from the same principles. So also with regard to evacuation, and the antiphlogistic regimen, when all the good proposed to be obtained by them has been received, a pursuit of the same method

* It is surprising how large and how disagreeable a discharge will be made for a considerable length of time, in some instances, from the detension and irritation of a splinter of bone. If therefore such discharge be made, and there be neither sinus nor lodgment to account for it, and all other circumstances are favourable, examination should always be made, in order to know whether such cause does not exist, and if it does, it must be gently and carefully removed.

thod must become injurious, and that for the same reason why it was before necessary and beneficial.

A non-attention to this has, I believe, been not infrequently the cause of the loss both of limbs and lives.

Every body who is acquainted with surgery knows, that in the case of bad compound fracture, attended with large suppuration, it sometimes happens, even under the best and most judicious treatment, that the discharge becomes too great for the patient to sustain ; and that after all the fatigue, pain and discipline, which he has undergone, it becomes necessary to compound for life by the loss of the limb.* This, I say, does sometimes happen under the best and most rational treatment ; but I am convinced that it also is now and then the consequence of pursuing the reducing, the antiphlogistic, and the relaxing plan too far. I would therefore take the liberty seriously to advise the young practitioner, to attend diligently to his patient's pulse and general state, as well as to that of his fractured limb and wound ; and when he finds all febrile complaint at an end, and all inflammatory tumor and hardness gone, that his patient is rather languid than feverish,

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that

* There is one circumstance relative to compound fractures, which perhaps may be deemed worth noting ; which is, that I do not remember ever to have seen it necessary to amputate a limb for a compound fracture, on account of the too great discharge, in which the fracture had been united. In all those cases, where the operation has been found necessary on account of the drain, the fracture has always been perfectly loose and disunited.

that his pulse is rather weak and low than hard and full, that his appetite begins to fail, and that he is inclined to sweat or purge without assignable cause, and this in consequence of a large discharge of matter from a limb which has suffered great inflammation, but which is now become rather soft and flabby than hard and tumid; that he will in such circumstances set about the support of his patient, and the strengthening of the diseased limb *totis viribus*; in which I am from experience satisfied, he may often be successful, where it may not be generally expected that he would. At least he will have the satisfaction of having made a rational attempt; and if he is obliged at last to have recourse to amputation, he will perform it, and his patient will submit to it with less reluctance than if no such trial had been made.

I have said, that a compound fracture either unites and heals as it were by the first intention, which is the case of some of the lucky few, (and was my own;) or it is attended with high inflammation, multiplied abscesses, and large suppuration, demanding all a surgeon's attention and skill; and even then sometimes ending in the loss of limb, or life, or both; or, that all our attempts prove fruitless from the first, and gangrene and mortification are the inevitable consequence of the accident.

The two first I have already spoken to, the last only remains.

Gangrene and mortification are sometimes the inevitable consequences of the mischief done to the limb at the time that the bone is broken; or they

they are the consequences of the laceration of parts made by the mere protrusion of the said bone.

They are also sometimes the effect of improper or negligent treatment ; of great violence used in making extension ; of irritation of the wounded parts, by poking after, or in removing fragments or splinters of bone ; of painful dressings ; of improper disposition of the limb, and of the neglect of phlebotomy, anodynes, evacuation, &c. Any or all these, are capable either of inducing such a state of inflammation as shall end in a gangrene, or of permitting the inflammation, necessarily attendant upon such accident, to terminate in the same event.

When such accident or such disease is the mere consequence of the injury done to the limb, either at the time of or by the fracture, it generally makes its appearance very early ; in which case also, its progress is generally too rapid for art to check. For these reasons, when the mischief seems to be of such nature as that gangrene and mortification are most likely to ensue, no time can be spared, and the impending mischief must either be submitted to or prevented by early amputation. I have already said, that a very few hours make all the difference between probable safety and destruction. If we wait till the disease has taken possession of the limb, even in the smallest degree, the operation will serve no purpose, but that of accelerating the patient's death. If we wait for an apparent alteration in the part, we shall have waited until all opportunity of being

ing really serviceable is past. The disease takes possession of the cellular membrane surrounding the large blood vessels and nerves, some time before it makes any appearance in the integuments; and will always be found to extend much higher in the former part, than its appearance in the latter seems to indicate. I have more than once seen the experiment made of amputating, after a gangrene has been begun, but I never saw it succeed; it has always hastened the patient's destruction.

As far therefore as my experience will enable me to judge, or as I may from thence be permitted to dictate, I would advise that such attempt should never be made; but the first opportunity having been neglected or not embraced, all the power of the chirurgic art is to be employed in assisting nature to separate the diseased part from the sound; an attempt which now and then, under particular circumstances, has proved successful, but which is so rarely so, as not to be much depended upon.

If the parts are so bruised and torn, that the circulation through them is rendered impracticable, or if the gangrene is the immediate effect of such mischief, the consequence of omitting amputation, and of attempting to save the limb is, as I have already observed, most frequently very early destruction; but if the gangrenous mischief be not merely and immediately the effect of the wounded state of the parts, but of high inflammation, badness of general habit, improper disposition of the limb, &c. it is sometimes in our power so to alleviate, correct, and alter these
causes,

causes, as to obtain a truce with the disease, and a separation of the unsound parts from the sound. The means whereby to accomplish this end, must in the nature of things be varied according to the producing causes or circumstances: the sanguine and bilious must be lowered and emptied; the weak and debilitated must be assisted by such medicines as will add force to the *vis vitæ*; and errors in the treatment of the wound or fracture must be corrected; but it is evident to common sense, that for these there is no possibility of prescribing any other than very general rules indeed. The nature and circumstances of each individual case must determine the practitioner's conduct.

In general, inflammation will require phlebotomy and an open belly, together with the neutral antiphlogistic medicines; pain and irritation will stand in need of anodynes, and the Peruvian bark, joined in some cases, and at some times, with those of the cooling kind, at others with the cordial, will be found necessary and useful. So also tension and induration will point out the use of fomentation and relaxing warm cataplasms, and the most soft and lenient treatment and dressing. But there are two parts of the treatment of this kind of case mentioned by the generality of writers, which I cannot think of as they seem to have done. One is, the use of stimulating antiseptic applications to the wound; the other is, what is commonly called scarification of the limb. [Let it be remarked, that I speak of both these, as prescribed and practised while the gangrene is forming, as it were, and the parts are by no means mortified.] While the inflammatory tension

sion subsists, alleviation of pain, and relaxation of the wounded and swollen parts, in order to obtain a suppuration, and consequently a separation, seem to constitute the intention, which ought to be pursued upon the most rational principles: warm irritating tinctures of myrrh, aloes and euphorbium; mixtures of tinct. myrrh. with mel. Ægyptiac. and such kind of medicines, which are found to be frequently ordered, and indeed are frequently used, particularly in compound fractures produced by gun-shot, seem to me to be very opposite to such intention, and very little likely to produce or to contribute to the one thing which ought to be aimed at, I mean the establishment of a kindly suppuration. I know what is said in answer to this, viz. that such kind of stimulus assists nature in throwing off the diseased parts: but this is a kind of language, which I believe will be found upon examination to have been first used without any sufficient or good ground, and to have been echoed ever since upon trust. It had its foundation in the opinion that gunshot wounds were poisonous, and that the mortification in them was the effect of fire, and it has been continued ever since to the great detriment of many a sufferer. A gunshot wound, whether with or without fracture, is a wound accompanied with the highest degree of contusion, and with some degree of laceration, and every greatly contused and lacerated wound requires the same kind of treatment which a gunshot wound does, as far as regards the soft parts. The intention in both ought to be to appease pain, irritation, and inflammation, to relax the indurated,
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and to unload the swollen parts, and by such means to procure a kindly suppuration, the consequence of which must be, a separation of the diseased parts from the sound. Now whether this is likely to be the best and soonest accomplished by such dressings and such applications as heat and stimulate, and render the parts to which they are applied crisp and rigid, may fairly be left to common sense to determine.

Scarification, in the manner and at the time in which it is generally ordered and performed, has never appeared to me to have served any one good purpose. When the parts are really mortified, incisions made of sufficient depth will give discharge to a quantity of acrid and offensive ichor; will let out the confined air, which is the effect of putrefaction, and thereby will contribute to unloading the whole limb; and they will also make way for the application of proper dressings. ---But while a gangrene is impending, that is, while the parts are in the highest state of inflammation, what the benefit can be which is supposed or expected to proceed from scratching the surface of the skin with a lancet, I never could imagine; nor, though I have often seen it practised, do I remember ever to have seen any real benefit from it. If the skin be still sound and of quick sensation, the scratching it in this superficial manner is painful, and adds to the inflamed state of it; if it be not sound, but quite altered, such superficial incision can do no possible service; both the sanies and the imprisoned air are beneath the *membrana adiposa*; and merely
scratching

scratching the skin in the superficial manner in which it is generally done, will not reach to, or discharge either.

From what has been said, it will appear, that there are three points of time, or three stages of a bad compound fracture, in which amputation of the limb may be necessary and right, and these three points of time are so limited, that a good deal of the hazard or safety of the operation depends on the observance or non-observance of them.

The first is immediately after the accident, before inflammation has taken possession of the parts. If this opportunity be neglected or not embraced, the consequence is either a gangrene or a large suppuration, with formation and lodgment of matter. If the former of these be the case, the operation ought never to be thought of, till there is a perfect and absolute separation of the mortified parts. If the latter, no man can possibly propose the removal of a limb, until it be found by sufficient trial, that there is no prospect of obtaining a cure without; and that by not performing the operation, the patient's strength and life will be exhausted by the discharge. When this becomes the hazard, the sooner amputation is performed the better. In the first instance, the operation ought to take place before inflammatory mischief is incurred; in the second we are to wait for a kind of crisis of such inflammation; in the third, the proportional strength and state of the patient, compared with the discharge and the state of the fracture, must form our determination.



O F

DISLOCATIONS

IN GENERAL.

THE principle inculcated so frequently in some of the foregoing pages, concerning the extended or relaxed, that is, the resistant or non-resistant, state of the muscles, as depending on the position of the limb, may be applied with equal truth and equal advantage to dislocations, as to fractures. Neither of them can indeed be rightly understood or judiciously treated without such consideration. In both, a perfect knowledge of the disposition, force, attachments and uses of the muscles, at least those of the limbs, are absolutely and indispensably necessary: and if the young students would be careful in attending to the plain and obvious parts of anatomy; if they would with their own hands dissect the muscles,

muscles, tendons, blood-vessels and nerves ; if they would examine minutely the structure, dispositions and connexions of all the parts which form the various joints, with their ligaments, and attend to the effects which the actions of the muscles and tendons connected therewith must necessarily have on them, they would have much more precise and adequate ideas of luxations, than many of them have ; they would have ideas of their own, not taken upon trust from writers, who have for ages done little more than copy each other, and they would act with much more satisfaction to themselves.

By what our forefathers have said on the subject of luxations, and by the descriptions and figures which they have left us of the means they used, of what they call their organa and machinamenta, it is plain that force was their object, and that whatever purposes were aimed at or executed by these instruments or machines, were aimed at and executed principally by violence.

Many, or most of them indeed, are much more calculated to pull a man's joints asunder, than to set them to rights. I will not go so far as to say, that they are all equally bad or improper ; but I will venture to affirm, that hardly any of them are so contrived as to execute the purpose for which they should be used, in the manner most agreeable, or most adapted to the nature or mechanism of the parts on which they are to operate, or to accomplish such purpose

pose in the most easy and most practicable manner, and consequently, as I have already said, they act by force principally.

Nor is that all; some of them labour under another defect, and that capable of producing great mischief; which is, that the force or power of the instrument is not always determinable, as to degree, by the operator, and consequently may do too little or too much, according to different circumstances in the case, or more or less caution or rashness in the surgeon.

I know very well that many of these are now laid aside, and that some few have been so altered, as to become useful; but still the same kind of principle, on which these instruments were originally founded and constructed, very generally prevails, and violence is used, to the great fatigue, pain, and inconvenience of the patient, in many cases, in which dexterity joined to a knowledge of the parts, would execute the same purpose with facility and ease.

In dislocations, as in fractures, our great attention ought to be paid to the muscles belonging to the part affected. These are the moving powers, and by these the joints, as well as other moveable parts, are put into action: while the parts to be moved are in right order and disposition, their actions will be regular and just, and generally determinable by the will of the agent, (at least in what are called voluntary motions); but when the said parts

parts are disturbed from that order and disposition, the action or power of the muscles does not therefore cease, far from it, they still continue to exert themselves occasionally ; but instead of producing regular motions, at the will of the agent, they pull and distort the parts they are attached to, and which by being displaced cannot perform the functions for which they were designed.

From hence, and from hence principally, arise the trouble and difficulty which attend the reduction of luxated joints. The mere bones composing the articulations, or the mere connecting ligaments, would in general afford very little opposition ; and the replacing the dislocation would require very little trouble or force, was it not for the resistance of the muscles and tendons attached to and connected with them : for by examining the fresh joints of the human body, we shall find that they not only are all moved by muscles and tendons, but also, that although what are called the ligaments of the joints do really connect and hold them together, in such manner as could not well be executed without them, yet, in many instances they are, when stript of all connection, so very weak and lax, and so dilatable and distractile, that they do little more than connect the bones and retain the synovia ; and that the strength, as well as the motion of the joints, depends in great measure on the muscles and tendons connected with and passing over them ; and this in those articulations which
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are designed for the greatest quantity, as well as the celerity of motion. Hence it must follow, that as the figure, mobility, action, and strength of the principal joints, depend so much more on the muscles and tendons in connection with them, than on their mere ligaments; that the former are the parts which require our first and greatest regard, these being the parts which will necessarily oppose us in our attempts for reduction, and whose resistance must be either eluded or overcome; terms of very different import, and which every practitioner ought to be well apprised of.

From the same examination is to be obtained a kind and degree of very useful information, which the skeleton cannot afford. I mean an acquaintance with the ligaments themselves, both external and internal; the cartilages, both fixed and moveable; and the parts furnishing what is called the synovia.

This, to those who are perfectly acquainted with the subject, may seem too obvious to have needed mention; but no one who has not examined the joints can possibly have this kind of necessary knowledge; and I am convinced that there are many practitioners who have no idea of articulations, but what the assemblage of dry bones has furnished them, and which must be very inadequate.

I have neither leisure nor inclination at present to enter into this matter minutely, or indeed as it deserves; beside which, I have, I fear, sufficiently exercised my reader's patience already

already in the foregoing sheets. I will therefore detain him no longer than while I mention a few leading principles relative to luxations in general, drawn from the structure of the parts concerned, and which appear to me to be applicable, with very little if any variation, to every particular species.

1. Although a joint may have been luxated by means of considerable violence, it does by no means follow, that the same degree of violence is necessary for its reduction.

2. When a joint has been luxated, at least one of the bones of which it is composed is detained in that its unnatural situation, by the action of some of the muscular parts in connection with it; which action, by the immobility of the joint, becomes, as it were, tonic, and is not under the direction of the will of the patient.

3. That the mere bursal ligaments of some of the joints, endued with great mobility, are weak, distractile, and constantly moistened; that for these reasons they are capable of suffering considerable violence without being lacerated; but that they are also sometimes most certainly torn.

4. That did the laceration of the said ligaments happen much more frequently than I believe it does, yet it cannot be a matter of very great consequence, as it neither totally prevents reduction, when timely and properly attempted, nor a consequent cure.*

5. That

* In the accident of a dislocated tibia, from a broken fibula, the strong, inelastic, tendinous ligaments, which fasten the end of the
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5. That supposing such accident to be frequent, yet as it is impossible to know, with any kind of certainty, whether it has happened or not, or in what part of the ligament, it cannot be admitted as a rule for our conduct, nor ought such mere conjecture to produce any deviation from what we ought to do, were there no such supposition. Could we know with certainty when and where this had happened, very useful information might indeed be drawn from it.

6. That all the force used in reducing a luxated bone, be it more or less, be it by hands, towels, ligatures or machines, ought always to be applied to the other extremity of the said bone, and as much as possible to that only.

In every joint capable of dislocation, the same circumstance which renders it liable to be

the former bone to the astragalus and os calcis, are frequently torn; and as these by proper care almost always do well and recover all their strength, there is the greatest reason to expect, that the more weak, distractile ones do the same. The only mischief which seems most likely to follow from a laceration of the latter is, from an effusion of the synovia; of which I think I have (in a bad habit) seen an instance in the joint of the ankle. That the laceration of the bursal ligament of the shoulder cannot be a frequent or general impediment to reduction appears to me, from my never having in more than twenty years care of an hospital, met with a single instance of its impracticability, when attempted in time.

For it can hardly be supposed, that such kind of accident should never have fallen to my lot, or to the people who have acted under me.

But even if this could be supposed, I can also say, that I do not remember impossibility of reduction to have happened to any of the other gentlemen of the house, under the same circumstances.

be displaced, is also a very considerable assistance in its reduction. I mean the dilatibility or distractile power of the ligaments, their capacity of giving way when stretched or pulled at.

This is perhaps the strongest argument which can be produced, why all the force made use of in reducing a dislocated joint should be applied to that bone only, and not to the next. By the yielding nature of the ligaments of the luxated joint, reduction is to be accomplished. The ligaments of the other articulation, which is not luxated are yielding also; and all the force which is applied to the bone below or adjoining, must necessarily be lost in the articulation which is not luxated, and can be of little or no service in that which is.

Let this principle be applied to the dislocation of the joint of the shoulder, and it will shew us why the ambi, in which the whole arm is tied down, and subjected to the extending power of the said instrument, is defective, and may be pernicious. Why instruments built on the same general principle, but in which the fore-arm is not fastened down, but left at liberty and not subjected to the ligature, execute their purpose with a great deal less force. Why the vulgar but frequently very successful method of reducing this joint, by placing the operator's heel in the axilla of the supine patient, sometimes fails, the surgeon not having proper assistance, and contenting himself with pulling at the patient's wrist only. It will

will also shew us, why, in the case of a luxated os femoris at the joint of the hip, the strength of five or six people divided between the joint of the knee and that of the ankle, shall be insufficient, and that of four, nay three of the same assistants, shall in the same case prove sufficient, by being all, and properly applied to the knee and femur only, as I have more than once seen.

Many other applications of this principle might be made, but these are sufficient to those who understand the principle itself and see its force.

7. That in the reduction of such joints, as are composed of a round head, received into a socket, such as those of the shoulder and hip, the whole body should be kept as steady as possible, for the same reason as in the foregoing.

8. That in order to make use of an extending force with all possible advantage, and to excite thereby the least pain and inconvenience, it is necessary that all parts serving to the motion of the dislocated joint, or in any degree connected with it, be put into such a state as to give the smallest possible degree of resistance.

This I take to be the first and great principle by which a surgeon ought to regulate his conduct in reducing luxations. This will shew us why a knowledge of all the muscular and tendinous parts acting upon, or in connection with the articulations, is absolutely necessary for him who would do his business scientifically, with satisfacti-

on to himself or with ease to his patient. It will shew us, that the mere position of the limb below the luxated joint, is what must either relax or make tense the parts in connection with that joint, and consequently that posture is more than half of the business. It will shew us, why sometimes the luxated os humeri slips in, as it were of its own accord, by merely changing the position of the arm, when very violent attempts, previous to this, have proved successful. It will shew us why extending the arm in a straight line horizontally, or so as to make a right angle with the body, must in some instances, render all moderate attempts fruitless. Why the method of attempting reduction by the heel in the axilla is so often successful, notwithstanding two very considerable disadvantages under which it labours, viz. part of the force being lost in the elbow, and the tense state of one head of the biceps cubiti. Why the tying down the fore arm in the common ambi is wrong, for the same reasons. Why the fore-arm should at all times (let the method of reduction be what it may) be bent, viz. because of the resistance of the long head of the biceps in an extended posture. Why when the os humeri is luxated forward, or so that its head lies under the great pectoral muscle, the carrying the extended arm backward, so as to put that muscle on the stretch, renders the reduction very difficult, and why, on the contrary, the bringing the arm forward, so as to relax the said muscle, removes that difficulty, and renders reduction easy. Why the reduction of a luxated elbow

elbow should always be attempted by bending the said joint. Why, when the inner angle is dislocated in consequence of a fracture of the fibula, it is extremely difficult at all times, and sometimes impracticable, either to reduce or to keep reduced the said joint, while the leg is in an extended posture; and why a bent posture of the leg enables us with ease to accomplish both these ends. Why in the case of dislocation of the head of the os femoris, (be it in what manner it may) a straight position of the leg and thigh will always increase the difficulty of reduction; and why that very distorted and bent disposition, in which the patient will always place it for his own ease, is and must be the posture most favourable for reduction; because it is and must be that posture in which the muscles, most likely to make opposition, are most relaxed and rendered less capable of resistance.*

9. That in the reduction of such joints as consist of a round head, moving in an acetabulum or socket, no attempt ought to be made for replacing the said head, until it has by extension been brought

* In the attempts for reduction of a luxated hip, there is one circumstance, which by being overlooked, or not attended to, has more than once rendered every effort vain.

It is usual and indeed necessary to tie down and confine the patient on a bed or table, in order to keep his body firm and steady; one part of the bandage or strapping by which he is confined is fixed in the groin, and passing over his belly, and under his buttock, is fastened above or rather beyond his head to something immovable. If this bandage be placed (as I have seen it) in the groin on the side of the luxated bone, it will prove so far from being assistant, that it will necessarily frustrate every attempt.

brought forth from the place where it is, and nearly to a level with the said socket.

This will shew us another fault in the common ambi, and why that kind of ambi, which Mr. Freke called his commander, is a much better instrument than any of them, or indeed than all; because it is a lever joined to an extensor; and that capable of being used with the arm in such position, as to require the least extension, and to admit the most; beside which it is graduated, and therefore perfectly under the dominion of the operator.

It will shew us, why the old method by the door or ladder, sometimes produced a fracture of the neck of the scapula; as I have seen it do in our own time.

Why if a sufficient degree of extension be not made, the towel over the surgeon's shoulder, and under the patient's axilla, must prove an impediment rather than an assistance, by thrusting the head of the humerus under the neck of the scapula, instead of directing it into its socket.

Why the bar or rolling-pin under the axilla produce the same effect.

Why the common method of bending the arm (that is the os humeri) downward, before sufficient extension has been made, prevents the very thing aimed at; by pushing the head of the bone under the scapula, which the continuation of the extension for a few seconds only would have carried into its proper place.

I know it is said, that mere extension only draws the head of the bone out from the axilla,
in

in which it was lodged, but does not replace it in the acetabulum scapulæ. To which I will venture to answer, that when the head of the os humeri is drawn forth from the axilla, and brought to a level with the cup of the scapula, it must be a very great and very unnecessary addition of extending force, that will or can keep it from going into it. All that the surgeon has to do, is to bring it to such level; the muscles attached to the bone will do the rest for him, and that whether he will or not.

Indeed if all the rational means and methods for reducing a luxated shoulder be examined, they will be found to act upon this principle, however differently this matter may appear to those who have not attended to it. Even the common ambi succeeds by means of the extension which the carrying the arm down with it produces, and not by its lever. That part of the instrument, so far from helping, is often a considerable hindrance, and even sometimes frustrates the operator's intention, by pushing the head of the bone against the scapula, before it is sufficiently drawn out from the axilla.

If it was necessary to add any thing in support of this doctrine, I should say, that the supposition of laceration of the bursal ligament, being a circumstance frequently attending this luxation, and proving an impediment to reduction, is a strong inducement to us to be always attentive to the making such extension, it being much more likely that the head of the bone should return back by the same rent in the ligament, when

when such ligament is moderately stretched out, than when it may be supposed to lie wrinkled or in folds

10. The last principle which I shall take the liberty to mention, and which I would inculcate very seriously is, that whatever kind or degree of force may be found necessary for the reduction of a luxated joint, that such force be employed gradually; that the lesser degree be always first tried, and that it be increased gradatim.

Whoever reflects on what is intended by extension, what the parts are which resist, and how that resistance may be best overcome, will want little argument to induce him to accede to this principle; the advantages deducible from attending to it, and the disadvantages which may and do follow the neglect of it, are so obvious.

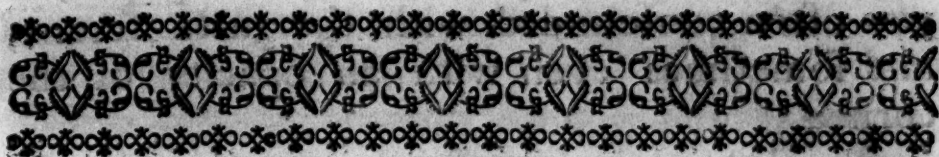
They who have not made the experiment will not believe to how great a degree a gradually increased extension may be carried without any injury to the parts extended; whereas great force, exerted hastily, is productive of very terrible and very lasting mischief.

I know that the vis percussiois, as it is called, has been recommended, as having been successful in some difficult luxations; but I have seen such bad consequences from it, that I cannot help bearing my testimony against it. The extensile and distractile quality of the membranes, muscles and ligaments, enables them to bear the application

application of very great force to them, without hurt, if such force be applied gradually, and proper time be allowed for the parts to give way in; but great force suddenly applied, is capable of producing the most mischievous consequences; and that in many other parts of surgery, beside what relates to luxations,



[illegible]



R E M A R K S

ON THE

C A T A R A C T.

NOtwithstanding the variety of operations and processes which, for the relief or cure of this disease, are to be found in almost all the books of our forefathers, yet it is very certain that, until within these last fifty years, neither the state, nature, nor seat of it, were truly known; at least not to the practitioners of surgery.

Wild and various were the conjectures concerning it: it was by some said to be a distemper of the vitreous humour; by others of the aqueous; by some it was thought to be a condensation of earthy particles; by others a membranous

membranous film : it was said by some to be anterior, by others, posterior, to the pupil ; it was often confounded with the gutta serena, and sometimes even with an opacity of the cornea.

Accident, one great source of many an useful discovery both in physic and surgery, first proved it to be a distemper of the corpus chrySTALLINUM ; to be in general absolutely confined to it, and to consist of a greater or less degree of opacity : and now, as is usual in all such cases, we are convinced, that all the attempts, and all the operations, which ever were made, or practised to any good purpose, either for its relief, or its cure, could be successful only as they affected that body.

From the knowledge of its seat, and of one of the principal circumstances of its nature, we have been enabled to direct our attempts more rationally, and to act with a greater degree of precision and satisfaction ; but still from all I have been able to collect, either from books or from practitioners, there are some material circumstances relative to the disease, which are not rightly, at least not generally understood ; some remains of the old doctrine still continue to influence both our opinion and practice ; some things are taken for granted which are by no means true ; and practical inferences are drawn from others, which are not admissible. Whether an attempt to set some of these in a clearer light, will or ought to be attended with any alteration in the treatment of the distemper,

per, must be left to others to determine : I shall content myself with relating, as briefly as I can, some few particulars which appear to me to deserve attention.

One general opinion among our ancestors was, that every cataract had its seasons ; was at one time immature or unripe, at another mature or ripe ; and that the term unripe, necessarily implied a soft, that of ripe, a hard, or firm state of the chrySTALLINE.

The opinion was a necessary consequence of the theory then most frequently embraced, and was therefore generally credited ; and, as very often happens with regard to preconceived notions, it was thought to be confirmed by facts.

This doctrine has, it is true, been contradicted by some of our best modern practitioners ; but still it not only remains the opinion of many, but has a very considerable share in determining the preference supposed to be due to one method of operating over another.

The terms imply, and are generally understood to mean, that every cataract is at first soft, through its whole substance ; and that by degrees, in more or less time, it becomes hard and firm, or at least harder and firmer than the natural crystalline : which latter circumstance is by no means true, either necessarily or even generally. I will not say that it never is : but I can venture to affirm, that it most frequently is not. Some of our remote ancestors borrowed their ideas, on this subject, from the kernels

nels of fruits, to which they have indeed compared the cataract: but the notions of ripe and unripe, have remained with many who were aware of the exceeding absurdity of the comparison.

If this was a merely speculative point, it would be a matter of very little importance; but as a practical inference is drawn from it, that the early, or supposed unripe state is an improper one for an operation, and that therefore a patient should wait for a later or ripe one, it becomes a matter of considerable consequence to such person whether he shall, or shall not continue blind all that very uncertain space of time. Neither is this all, material as it may seem, for the same doctrine implies, that the first degree or appearance of obscurity, however soft the crystalline may then be, will certainly be followed by an induration of it; or, in other words, that the crystalline is first rendered soft merely and only to become hard afterwards: that the same first, or soft, state is not proper for an operation, because it would necessarily render it unsuccessful; and that an increased degree of opacity, and obscurity, may, in general, be regarded as marks of increased firmness: not one of which is true.

The natural, found, transparent crystalline, is very far from being uniform in its consistence through its whole substance: its external part is much softer, and more gelatinous, than its internal: which therefore, although equally transparent, may be said to form a kind of nucleus,

cleus, and is always of much firmer texture.* From this sound and natural state, it is capable of several morbid alterations: it is capable of being dissolved, or of becoming fluid, without losing any thing of its transparency: † it is capable of being dissolved into an apparently uniform fluid of a gelatinous kind of consistence, but which will be more or less opake through the whole; it sometimes becomes opake while it undergoes a partial kind of dissolution, which leaves, or renders the different parts of it, of very different degrees of consistence; and it now and then, though very rarely, becomes opake through its whole substance, and yet preserves its natural degree of firmness.‡

Whenever

* If this known difference of consistence, between the external and internal parts of the crystalline, was duly attended to, it would solve many of the appearances in cataracts; which, for want of such attention, are either not accounted for, or very absurdly. Among other phenomena, it would account for the very different colour which the different parts of the same cataract frequently bear; and which has furnished the wildest conjectures.

† It has been supposed, by very good anatomists, that the human crystalline has sometimes, between its surface and its capsula, a small quantity of fine pellucid lymph; and consequently that there is no immediate connection between that body and its investing membrane. In many beasts, as well as fishes, this is known to be the case; but whether it be so in the human eye, is not very easy to be known during life, but that this is the case, sometimes from distemper, I have no doubt: I mean that the whole crystalline is dissolved into a fluid, still preserving its transparency. This kind of alteration, as I take it, forms, what is by some called, one species of the gutta serena; by others, the black cataract.

‡ From this variety of alteration, which the crystalline is capable of undergoing, proceeds that variety of appearance which our ancestors have called so many different kinds of cataracts.

Whenever the crystalline becomes softer than it should be, or tends toward such state, it is certainly distempered, and unfit for perfect vision, whether it be opake or not, or whatever its degree of opacity may be: but whoever supposes that such softened and opake crystalline will necessarily, or even frequently, acquire firmness, or become hard by time, is exceedingly mistaken. Opacity, though now and then accompanied by what is called induration, is no proof of it, nor of any tendency towards it; so far from it, that some of the most dissolved or fluid cataracts, and which have been so for the greatest length of time, are found full as opake as the most firm ones.

Whoever has an opportunity of observing this distemper, and will embrace it, will find that cataracts which have in a length of time, gone through all those alterations of colour, which are said to indicate unripeness, and ripeness, are often as perfectly soft as they ever could have been; and on the other hand, will sometimes find them what is called firm or hard very soon after the first appearance of obscurity. That is, to speak more truly, as well as more properly, the former, having been at first dissolved, have remained in the same state of dissolution; and the latter, having been at first only partially softened, have been found in the same unequal state, with a firm nucleus.*

When

* For this there is no possibility of accounting rationally, but by having recourse to the natural state of the crystalline, with regard
to

When, therefore, I make use of the term induration, I do it in compliance with the common method of speaking; and not because I think that it conveys, by any means, an adequate idea of the real alteration made in the state of the crystalline; far from it; it neither conveys an idea of the nature, nor of the extent of such alteration: with regard to the former, the term induration can, with propriety, be used only in opposition to a perfect or general distempered dissolution, by much the majority of what are called firm cataracts, being much less firm than the same crystalline was before such alteration: and with regard to the latter circumstance, the extent of the mischief, it is subject to the greatest degree of uncertainty; being seldom or never an induration of the whole body, but most frequently a firmish kind of nucleus, of greater or less size, contained within more or less of a gelatinous, or softer kind of substance: so that the nucleus is called firm only in opposition to what envelopes it.

In short, if we would think and speak of this matter as it really is (or as it appears to me to be) instead of using the terms soft and
hard

to the different consistence of its different parts. This will account for the alterations to which it is liable from time, accident, or distemper; this will shew why there is no uniformly and universally hard cataract; why, in all of them, the softest part is always on the surface; why, even in the hardest, the central part is always the most firm; and why the external and internal parts of the same cataract, are so often so different from each other in colour.

hard in opposition to each other, and as implying different effects either of time or of distemper on the crystalline, we should say that dissolution or softening, in some degree, is by much the most common effect: That, except in some few instances, where that body retains its natural firmness, while it loses its transparency, the most frequent consequence is a softening of its texture, either partial or total: and that seven times in nine, when the crystalline becomes opake, and tends towards forming a cataract, it is more or less softened; sometimes equally through its whole substance, sometimes partially, having a greater or less portion left undissolved.

This undissolved part, which always makes what is called a hard cataract, may indeed be called firm in opposition to the softer, by which it is surrounded; but even this very part is hardly, if ever, so firm as the center of the natural and sound crystalline.

I beg the reader's pardon for having been somewhat prolix, but the subject did not appear to me to have been properly attended to.

It would be exceedingly pleasant, as well as advantageous, if we could, previous to an operation, know the true state of an opake crystalline: it would enable a surgeon to determine his mode of operating with more precision, and to explain what his intention by such method was: it would give satisfaction to himself as well as to standers-by; and make that appear
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to be judicious and rational, which, under our present uncertainty, has often the appearance of being accidental, and done at random.

It is agreed by all, who have carefully considered this subject, and who are ingenuous enough to speak the truth, that the mere colour of a cataract furnishes no proof, to be by any means depended upon, relative to its consistence ; and that they which appear greyish, or blueish, or like whey, are sometimes found to be firm and resistent, while the more equally white ones, are often perfectly soft.

I do not mean to assert, but merely to propose, to the consideration of such as may have leisure and opportunity, whether when the opaque crystalline is quite dissolved, so as to form a soft cataract, it is not, at the same time, somewhat enlarged ; and whether when such dissolution does not take place, and what is called a hard cataract is formed, the crystalline is not, in some degree, lessened or shrunk.

Among the circumstances which have concurred to incline me to be of this opinion is this, that when the pupil has been observed to be always in a state of dilatation, even when exposed to a strong light, and although capable of motion, yet never to contract in the usual manner, I have most commonly found the cataract to have been soft ; and, on the contrary, when the pupil has been capable of full and perfect contraction over the cataract, I think, that it has most commonly proved firm ; and this difference I have more than once observed

in the different eyes of the same person. The greater degree of facility, with which the firm cataract quits its place, and passes through the pupil upon the division of the cornea, does not lessen the probability of this opinion. I could also wish that they who have opportunity would inquire, whether the cataracts which have been found perfectly soft, have not, in general, become gradually more and more opaque by very slow degrees ; and, in a length of time, the patient feeling little or no pain ; and whether the firm ones do not, in general, become hastily opaque ; and are not preceded, or accompanied by severe, and deeply-seated pain in the head, particularly in the hinder part of it.

What has hitherto been said, as it principally regards the theory of the distemper, may perhaps be thought to be of little importance ; but when the influence which these opinions may produce, and indeed have produced on practice, is considered, it will be found to be matter of some consequence : while they are confined to a surgeon's imagination only, they are not of much consideration ; but when they are to regulate his judgment, and direct his hand, they become rather serious.

Since the operation of extracting the cataract, instead of depressing it, has been introduced into practice, and made a kind of fashion, it has been the humour to exaggerate all the objections to
which

which the latter has been said to be liable ; and that in such a manner, that they who have not had frequent opportunities of seeing business of this kind, fall, without reflection, into the prevailing opinion ; seem to wonder, that the operation of couching should ever have had any success at all ; and at the same time are, from the accounts given, inclined to believe, that the extraction is always safe, easy, and successful.

The objections, which are made against the operation of couching, at least those which have any semblance of truth, or force, are reducible to four :

The first is, that if the cataract be perfectly soft, the operation will not be successful, from the impossibility of accomplishing the proposed end of it.

The second is, that if it be of the mixed kind, partly soft, and partly hard, it will also most probably fail of success, not only from the impracticability of depressing the softer parts, but also because the more firm ones will either elude the point of the needle, and remaining in the posterior chamber, still form a cataract ; or getting through the pupil into the anterior chamber, will there bring on pain and inflammation, and induce a necessity of dividing the cornea for their discharge.

The third is, that if the cataract be of the firm, solid kind, and therefore capable of being depressed, yet, in whatever part of the eye it shall happen to be placed, it will there remain undissolved, solid, opaque ; and although removed
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from the pupil, yet prove some hindrance to perfect vision.

The fourth objection is, that however successfully the depression may have been accomplished, yet that the operation will necessarily occasion such violation, and derangement of the internal parts of the eye, as must cause very considerable mischief.

These objections, if they have any real weight, are of equal force in every species of cataract; and therefore are the more worthy our attention: since, if they be founded on truth, they render the operation unfit for practice; but if they be not, misrepresentation and fashion should never induce us to lay aside any means which have been, and still may be, beneficial to mankind.

The first, and second, I can from frequently-repeated experience, affirm not to be true. I mean that the operation of couching will not necessarily, or even generally, be unsuccessful, merely because the cataract shall happen to be either totally or partially soft: on the contrary, although these states will prevent perfect depression, yet, by the judicious use of the needle, a recovery of sight, the true end and aim of the operation, will be as certainly and as perfectly obtained, as it could have been either by depression, or by extraction, in the same subject; and that generally without any of the many and great inconveniences which most frequently attend the latter operation.

The third objection is specious, and therefore very generally credited. That it never happens I
will

will not take upon me to say, because so many have asserted it; some of whom, one would hope, had some kind of authority for what they have so positively affirmed. But, on the other hand, when we consider how few there are who have written from their own examination and experience; and how many, who have taken for granted, and copied, what others have said before them; our faith will not be quite implicit. Certain I am, from repeated experience and examination, that this opinion has not that foundation in truth which it is generally supposed to have; and that it has been embraced and propagated hastily, and without sufficient inquiry and experiment.

As this supposed indissolubility of the opaque crystalline is not only so principal an objection to the operation of couching, even when it is capable of being perfectly depressed, as to be said to overbalance all the evils, many and great as they are, which frequently attend the extraction; but is also supposed to be the cause of the failure of success, when the depression of the softer kinds of cataracts is attempted; it may be worth a little serious examination.

I should be sorry to have it thought, that I had any predilection or partiality to one method of operating more than to another; or that I would wish to give to either any preference, but what its superior excellence, or utility might justly demand; but, on the other hand, I cannot possibly pay regard to any authority, however otherwise respectable, when it contradicts what I know
to

to be fact. Both operations are equally practicable by any man who has an hand and an eye, and is capable of performing either; but it has of late years been so much the humour to depreciate the one, and to extol the other, that it becomes necessary to examine the supposed merits of one, and demerits of the other; and to see whether they be drawn from premisses which are true: if one is to be deemed universally preferable to the other, let the circumstances on which such preference is to be founded, be drawn from fact, and not from fiction; let them be fairly and faithfully inquired into, and let such inquiry determine.

In order to assist in one part of this inquiry, I beg leave to lay before the reader, a few experiments and observations, which I have made; or I believe I should more properly say, have repeated; they having been often made and observed, but not properly enforced or applied.*

When the opake crystalline is in a state of dissolution, or the cataract is what is called perfectly soft, if the capsula of it be freely wounded by the couching needle, the contents will immediately issue forth, and mixing with the aqueous humour, will render it more or less turbid: sometimes so much as to conceal the point of the needle, and the iris of the eye from the operator.

This

* When I say experiments and observations which I have made and repeated, I would wish the reader to understand, that I have made them carefully, for the purpose; and so repeatedly, as to be satisfied of their *general* truth.

This is a circumstance which has been observed by most operators, and has been mentioned by many writers; but it has always been regarded and mentioned as an unlucky one, and as being, in some degree, preventative of success; which is so far from being the fact, that as far as relates to this circumstance merely, all the benefit which can be derived from the most successful depression, or extraction, most frequently attends it; as I have often and often seen.

The aqueous humour, however turbid it may become, will, in a very short space of time, be again perfectly clear; and if no disorder of the capsula of the crystalline, previous, or consequential, prevents, the rays of light * will pass without obstruction through

* The capsula, or investing membrane of the crystalline, has very often an unsuspected share in the apparent opacity of that body; and is thereby the cause of disappointments and inconveniences during some operations, and after others. This is a circumstance which, undoubtedly, has been mentioned; but has not been, by any means, sufficiently attended to. The capsula is capable of becoming white and opaque, while its contents shall be clear and transparent; it becomes so sometimes by being wounded by the couching-needle, used either for the depression of a firm cataract, or for the letting out a soft one; and it will not infrequently be found so, after the operation of extraction, when no instrument has touched it.

Whenever this happens, it is an unpleasant circumstance, but still more so, if it continues for any length of time: I have seen it disappear in a week; I have seen it continue two, three, or four, and at last totally disappear; and I have seen it continue so long as to require the re-application of the instrument. When it appears after the depression of a firm crystalline, or after an unsuccessful attempt to depress one which has proved not firm enough, it may easily be, and generally is, mistaken for a portion of the cataract risen again; but from which an attentive observer will always be able to distinguish it: but when such opacity follows what
is

through the pupil, and the patient will be restored to as perfect vision as could have followed the most successful operation of either, or of any kind in the same subject, and under the same circumstances.

When the cataract is of the mixed kind, partly soft, and partly hard, the immediate effects of the needle are somewhat different; the soft part of the cataract, being less in quantity, as well as generally less soft, the aqueous humour is less turbid; and the firm part or parts of the crystalline will be very visible. In this state, these firmer parts will very frequently elude the attempts made, by the needle, to depress them; and will therefore remain in the posterior chamber. This is also reckoned among the unfortunate circumstances; but although to an operator

is called a successful extraction, in which the cornea only was divided; the capsula not touched by the instrument, and the cataract came away entire through the pupil, the case is self-evident.

This may truly and properly be called, as it has been by Monsieur Houin, Haller, and others, a membranous cataract, as it consists merely of the membranous capsula of the crystalline.

Writers of credit have mentioned, that a cataract may be formed almost instantaneously, by external violence. There is no doubt of the fact; I have seen it four different times.

Whether this be not an affection of the capsula merely, I much doubt; or rather am much inclined to suspect, that it most frequently is. In three of the four, which have fallen under my observation, the opacity has gradually disappeared after the inflammation, in consequence of the blow, had gone off; and the eyes were left as clear as ever. A consequence which, I think, may be accounted for, by supposing the opacity in the capsula only; but cannot, if we suppose it to be in the corpus crystallinum itself.

tor not aware of, nor acquainted with the consequence, it may have all the appearance of being so, yet it really is not ; the true end and aim of the operation not being thereby necessarily frustrated. In this case, if the needle has been so used as to have wounded the capsula very slightly, it will sometimes happen, that the firm part of the crystalline will remain in its nidus, and still form a cataract ; which may possibly require a future, or re-application of the instrument. This is the worst that can happen, and happens indeed very seldom ; for if the capsula be properly wounded, so that the aqueous humour be freely let in, the firm part or parts, though very visible at first, and preventing the passage of light thro' the pupil, will in due time, in some longer, in others shorter, gradually dissolve, and at last totally disappear ; leaving the eye as fair, as clear, and as fit for vision, as any the most successful operation could have rendered it ; of which I have seen and exhibited many proofs.*

In

* The space of time, which the accomplishment of such dissolution will require, is very uncertain : I have seen the eye perfectly fair and clear, within a week after the operation ; and I have seen it require two months for the dissolution of all the opaque parts.

This has been observed by many even before the nature and seat of a cataract were truly known ; among the rest, by Read, who, speaking of one of his own operations, says :

“ At the end of nine days I visited my patient, and found both her and her friends highly discontented ; so that I met with nothing but invectives, &c.

“ Within a fortnight after, when art and nature having performed their mutual operations, and all the cloudy vapours and rags of the cataract were consumed and dispersed, her eyes grew clear, and her sight became perfect, &c.”

“ I would

through the pupil, and the patient will be restored to as perfect vision as could have followed the most successful operation of either, or of any kind in the same subject, and under the same circumstances.

When the cataract is of the mixed kind, partly soft, and partly hard, the immediate effects of the needle are somewhat different; the soft part of the cataract, being less in quantity, as well as generally less soft, the aqueous humour is less turbid; and the firm part or parts of the crystalline will be very visible. In this state, these firmer parts will very frequently elude the attempts made, by the needle, to depress them; and will therefore remain in the posterior chamber. This is also reckoned among the unfortunate circumstances; but although to an operator

is called a successful extraction, in which the cornea only was divided; the capsula not touched by the instrument, and the cataract came away entire through the pupil, the case is self-evident.

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In order to render the fact still more clear, I have sometimes, when I have found the cataract to be of the mixed kind, not attempted depression: but have contented myself with a free laceration of the capsula; and having turned the needle round and round between my finger and thumb, within the body of the crystalline, have left all the parts in their natural situation: in which cases I have hardly ever known them fail of dissolving so entirely, as not to leave the smallest vestige of a cataract.* In a few

“ I would have every patient, though after a cataract be couch-
 “ ed, and nine or ten days expired, he see little, or nothing at all,
 “ or that he cannot endure the light for a month or two, or even for
 “ a quarter of a year, as I have known many, not to be discourag-
 “ ed; for their sight may, notwithstanding, become well and per-
 “ fect, and continue so ever after. On the other hand, some
 “ come to good and perfect sight within a fortnight or three weeks.”

Sir W. READ, p. 7.

* The operation of extraction, though said in general to remove the crystalline intire, and calculated for such purpose, does not always do so; but when the cataract is of the mixed kind, does not infrequently leave some of the firmer part behind, which one of the warmest patrons of the operation allows does dissolve and disappear. “ Extrahendum statim post operationem est quicquid re-
 “ manet opaci ope Cochlearis Davielis. Hoc quidem facile, fit
 “ aliquando, aliquando vero et imprimis ubi membrana crystallina
 “ non fatis lacerata cochlear in ipsam capsulam lentis, ubi hæret
 “ illud opacum corpusculum non admittit, tantis difficultatibus cir-
 “ cumfusum est, ut quicquid etiam moliaris extrahere illud non
 “ possis, et ne oculum nimis irrites, desistere ab opere, et relinquere
 “ illud in oculo cogaris.

“ Neque tamen tunc etiam spe optimi successus destituimur.
 “ Sæpe enim observavi, opacum illud remanens, sive sit mucus,
 “ sive frustulum lentis crystallinæ, sensim, et sponte, citius vel
 “ tardius, penitus disparuisse. An resorbetur mucus lacteus, an
 “ frulentis crystallinæ liquecant sensim, et resorbentur, an in fun-
 “ dum oculi sensim se præcipitant, dubium est. Utrumque tamen
 “ fieri credo. Quoties lactea materia post depressam cataractam to-
 “ tum

few instances, where I have had fair opportunity, I have pushed the firm part through the pupil into the anterior chamber, where it has always gradually, and perfectly dissolved and disappeared, not producing pain or trouble, while such dissolution was accomplishing.*

What I have advanced not being matter of opinion, but matter of fact capable of being inquired into, and proved by any who will take the trouble of so doing, I do not desire any man to give credit to it upon my mere assertion. But if, upon repeated trial and inquiry, it should be found to be as generally and as frequently true by others, as it has been by me, may it not fairly be inferred, that whatever other reasons there may be for preferring the operation of extraction to that of depression, or the use of the knife to that of the needle, yet those drawn from the supposed indissolubility of the crystalline, are by no means conclusive; on the contrary, are very inconclusive. But this is by no means all; for if what I alleged
be

“tum humorem auquem opacitate suâ et albedine inficiens sensim
“penitus evanuit? Quoties pus in oculo hærens vel sanguis insigni
“quantitate in illum effusus, sensim resorptus evanuit? Quoties
“frustula lentis, crystallinæ, post depressionem cataractæ, in pu-
“pillâ relicta? &c. immo liquefcere aliquando et resorberi hæc
“frustula me ipsum experientia docuit, &c.”

RICHTER de Cataractæ Extract.

* I should be sorry to have it inferred from hence, that I would recommend passing the opaque crystalline through the pupil; far from it; I think it wrong, as it is apt to produce one of the most frequent inconveniences attending the operation of extraction, an irregularity of the pupil. I only meant to prove the fact of dissolution of the cataract in such situation; and that it will not cause that pain and trouble which it is so positively said to do.

be true, some other consequences, not a little interesting to the afflicted, will necessarily follow.

First, if the soft cataract will, when its capsula is properly wounded, mix with the aqueous humour, and undergo such a perfect dissolution, and absorption, as to leave the eye fair, clear, and fit for vision, and which I have so often proved, that I have not the smallest doubt about it; it will then follow, that the softness of a cataract is so far from being an unlucky circumstance, that it is rather a fortunate one; as it enables the patient to receive more early assistance; and that from an operation attended with less pain, and a less violation of parts, than a firmer one would necessarily require.

Secondly, When the cataract is of the mixed kind, and which therefore frequently foils all the attempts toward depression, the firmer parts may very safely be left for dissolution; and vision be thereby restored.

And, Thirdly, when the cataract shall happen to be of the firmer kind, and during an unsuccessful attempt to depress, get through the pupil behind the cornea, disappointment will be so far from being the consequence, that if no other injury has been done to the parts within, than what such attempt necessarily required, the displaced crystalline will gradually dissolve and disappear; and the patient will see as well as any operation could have enabled him to have done.

I may

I may perhaps be told, that what I have hitherto alleged only tends to prove, that both the soft and mixed cataract, when mixed with the aqueous humour by the laceration of the capsula, will dissolve, but that the firm one will not, and therefore must remain, wherever placed, a solid opaque body.

To which I answer, in the first place, that if what has been said relative to the soft, and to the mixed cataract be true, I cannot help thinking it to be very advantageous. In the second place, that the opinion concerning the indissolubility of the displaced crystalline has, I think, been taken up, and propagated, without proper authority from inquiry and experiment, fairly and deliberately made, and stands merely on a few accidental observations, which are by no means satisfactory. And, in the third place, that, as far as my own inquiry and observation go, I am satisfied, that it does dissolve wherever placed, provided it be perfectly freed from its attachment in its natural nidus.*

Both men and books talk of firm, hard, intire, uniform cataracts, as if they were as much so as what are found in the eye of a boiled fish.

* While I was preparing these sheets for the press, an old man was taken into St. Bartholomew's, who had a cataract in one eye, and had, by some accident, lost the sight of the other. I couched him; the cataract was as firm as I had ever felt any, and went down as easily, as immediately, and as intirely as possible. Three days after the operation, he was seized with so bad a small-pox, that he died on the eleventh, and the next day I took his eye home and examined it. The cataract lay just below and behind the uvea, toward the external canthus. It was become small, irregular, and manifestly in a state of dissolution.

fish. Whence they borrow this idea, I know not, unless it be from boiled fish; certain I am that it is not from nature.

Let any man examine the most firm, opake crystalline, taken from the eye of a living person, and which, from its firmness, passed out through the pupil and the divided cornea, with the greatest facility; he will generally find it to be in figure, size, and consistence, exceedingly unlike either to the natural and sound crystalline, or to one rendered opake by heat; and he will also find, that such alteration of shape and size is owing to a partial dissolution of its surface, particularly its anterior one; in short, if he will examine it carefully, and without prejudice, he will see, that what he calls an intire, firm cataract, is most frequently little more than the nucleus of an opake crystalline.

If a man might be allowed to argue in a case of this kind, *à priori*, he might very reasonably ask, why should the corpus crystallinum, which although opake, is, while in its natural situation, and enveloped in its proper capsula, so prone to dissolve, as we must know that it is, be supposed to be as prone to induration, immediately upon being removed from its place.

The most strenuous advocates, for extraction, cannot help allowing, that a portion or portions of a firm cataract, which they have been obliged to leave behind in the operation, dissolve and disappear in due time: it is, indeed a fact not to be contradicted: but the same people
say

say, that the intire cataract will not. What ideathey, who argue thus, have of an intire cataract, I know not; they may possibly conceive it to be depressed, still remaining enveloped in a firm capsula, and therefore to remain indissoluble: but if they would reflect on the extreme fineness of the capsular membrane; on the necessary action of the couching needle, when applied to it; and on the different consistence of the different parts of every, even the most opaque and firm cataract, they must see that it is a portion only of any cataract, however firm, which can in general be depressed.

One of the arguments, made use of by some of the late writers, in favour of extraction, is, that as the crystalline *must* be *destroyed*, it had better be removed. Now how can it be said to be destroyed, if it be only displaced, and remain indissoluble? Let them take which side of this argument they please, they must be wrong: for, if the diseased crystalline remain, though depressed, a solid body within the eye, how can it be said to be destroyed? and, on the other hand, if it be destroyed in the operation of couching, it must be by dissolution; and therefore cannot remain.

The last objection to the operation of couching is, that it must necessarily derange, and violate, the internal parts of the eye, particularly the vitreous humour.

If what I have said on the subject of the perfectly soft cataract, as well as on that which is partially so, be true, the greatest part, if not

the whole of this objection, will cease, with regard to these two : and it will be principally, if not totally, confined to that which is called firm and hard, and which, by its resistance to the instrument, will admit of being placed in the inferior part of the eye.

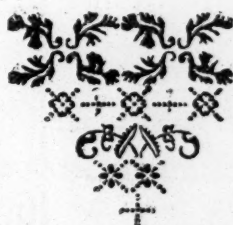
In the performance of this operation, the needle may certainly be so used, as to do considerable mischief ; but then it must be from the unskilfulness or awkwardness of the operator ; and which may be the case of every operation in surgery. But is an operation justly chargeable with ills, deducible merely from its having been ill executed ? I hope not.

I am very sensible, that much mischief has been done by attempts to couch ; but, in the first place, they have almost always been the consequence of want of judgment, or want of dexterity, in the operator ; and, in the next place, even under the most exaggerated representations, they are by no means equal to what has frequently been the consequence of attempts to extract.

It may possibly be supposed, that I have conceived a prejudice against the operation of extraction. Of this I am not conscious. I have sought and embraced every opportunity which a public hospital, and many years practice, have afforded me of operating in both ways ; and of comparing the consequences. I have seen many of the patients of others, not only of the gentlemen of the profession, but of most of the itinerant operators ; and am there-
by

by convinced, that the greatest part of the objections to the operation of couching are invalid ; have not been the result of unprejudiced experience, or a candid regard for truth ; that only the fair and prosperous side of the question, regarding the operation of extraction, has been industriously exhibited, while its manifold failures and ill-consequences have been as industriously concealed ; and that upon a fair detail and comparison of all the advantages, and disadvantages, conveniences, and inconveniences attending each, the preference will be found justly due to the needle.

Inconveniences and disappointments they are both too liable to : I heartily wish they were not : but, from the most cool and candid attention to fact, I am convinced, that the former are much greater, and the latter much more frequent, in the operation of extraction, than in that of depression, executed with the same degree of judgment.





SOME FEW

R E M A R K S

O N T H E

P O L Y P U S

O F T H E

N O S E.

IN these, as in the preceding remarks on the cataract, I do not mean to enter into a circumstantial history of the disease, but merely to offer a few practical observations on such parts of the doctrine concerning it, as appear to me to have been either inadvertently or erroneously delivered.

The

The polypus is a complaint which is always troublesome, frequently painful, and sometimes hazardous ; the first of these is, the necessary consequence of the situation of the distemper ; the second arises from its peculiar nature in the individual ; and the last, sometimes from its particular nature, and sometimes from the manner in which it may have been treated.

Writers tell us, and very truly, that it is a disease of the *membrana pituitaria narium* ; that it has different seats, origins, and attachments ; that it springs from the ethmoid bone, from the *ossa spongiosa*, from the *septum narium*, and even from the *antra maxillaria* : that it is hard or soft, pale or deep red, or sometimes purple ; that it is equal in its surface or unequal, large or small, moveable or fixed, single or multiform, painful or indolent ; that it makes its appearance forward in the nostrils, or backwards in the fauces behind the uvula ; and that it may be strumous, venereal, or cancerous. When they have given us these general, and merely definitive descriptions, they immediately proceed to the chirurgic treatment, or method of cure ; which, they tell us, is either by extraction, or the use of escharotics, to which some have added ligature : they then give a general description of the manner of using the forceps, of applying escharotics or of passing the string round it ; and having provided styptics for the suppression of hæmorrhage, they leave every thing else to the reader's imagination, and to the practitioner's choice and judgment.

From

From these accounts, those who have not had much opportunity of seeing for themselves, and who are thereby under a sort of necessity of forming their opinions, and regulating their practice by books, are induced to believe that, except in some few particular instances, where the distemper is palpably cancerous, that all others are equally objects of chirurgic treatment; and therefore, that if, in the first instance, they can lay hold of the polypus with the forceps, and in the second, can provide against the hæmorrhage which they have heard so much of, they shall have nothing else to do or to fear.

To me I must acknowledge, the matter appears very differently. I cannot help thinking, that there are many polypi, which, although they are neither schirrhous nor cancerous, are very unfit for any chirurgic treatment whatever; and that from several circumstances: which circumstances may act in different manners, though equally prohibitory: they may forbid an attempt merely from the impossibility of its being successful; or they may forbid it, because it is more likely to do harm than good; more likely to exasperate the disease than cure it; to increase the misfortune, than to lessen it.

The distinctive marks of the distemper, as laid down by writers, are, in general, just and true, but they only teach a young practitioner to know the disease when he may see it; they give him no warning of the mischief he may incur by attacking it unguardedly; nor inform him of a very serious truth, viz. that this is a sort of case,
in

in which, when real mischief has been done, it is sometimes without remedy.

As far as my experience and observation go, the polypi, which begin with, or are preceded by, considerable or frequent pain in the forehead and upper part of the nose, and which, as soon as they can be seen, are either highly red, or of a dark purple colour; they, which from the time of their being first noticed, have never been observed to be sometimes bigger, sometimes less, but have constantly rather increased; they in which the common actions of coughing, sneezing, and blowing the nose, give pain, or produce a very disagreeable sensation in the nostril and forehead; they which, when within reach, are painful to the touch, or which, upon being slightly touched, are apt to bleed; they which seem to be fixed and not moveable by the action of blowing the nose, or of deriving the air through the affected nostril only (where the polypus is only on one side); they which are incompressibly hard, and which, when pressed, occasion pain in the corner of the eye, and in the forehead, and which, if they shed any thing, shed blood; they which, by adhesion, occupy a very considerable space, and seem to consist of a thickening, or of an enlargement of all the membrane covering the septum narium; they which sometimes shed an ichorous, offensive, discoloured discharge; and they round whose lower part, within the nose, a probe cannot easily and freely be passed, and that to some height, ought not to be attempted, at least by the forceps; nor indeed by
any

any other means with which I have the good fortune to be acquainted; and this for reasons obviously deducible from the nature and circumstances of the polypus. On the one hand, the very large extent, and quantity of adhesion will render extirpation impracticable, even if the disease could be comprehended within the forceps, which it very frequently cannot; and, on the other, the malign nature of the distemper may render all partial removal, all unsuccessful attacks on it, and indeed any degree of irritation, productive of the most disagreeable consequences.

But the polypi which are of a palish or greyish light brown colour; or look like a membrane just going to be sloughy; they which are seldom or never painful, nor become so upon being pressed; they which have appeared to be at one time larger, at another less, as the air has happened to be moist or dry; they which ascend and descend freely by the action of respiration through the nose; they which the patient can make to descend by stopping the nostril which is free, or even most free, and then deriving the air through that which the polypus possesses; they which when pressed give no pain, easily yield to such pressure, become flat thereby, and distil a clear lymph; and they, round whose lower and visible part a probe can easily, and that to some height, be passed, are fair and fit for extraction; the polypus, in these circumstances, frequently coming away intire; or if it does not, yet it is removable without pain, hæmorrhage, or hazard of any kind;

kind ; the second of which circumstances I can with strict truth affirm, I never yet met with when the disease was at all fit for the operation.*

Of the benign kind of polypus, fit for extraction, there are two sorts, whose principal difference from each other consists in their different origin or attachment : that which is most freely moveable within the nostril, upon forcible respiration, which has been found to be most liable to change of size, at different times and seasons, that which has increased the most in the same space of time ; that which seems most limpid, and most freely yields lymph upon pressure, has its origin most commonly by a stalk or kind of peduncle, which is very small, compared to the size of the polypus ; while that, which although plainly moveable, is still considerably less so than the other, which has been less liable to alteration from air and seasons, and has been rather slow
in

* They, who are affected with this sort of polypus, generally complain, and that for a considerable time before the polypus becomes visible, that they are perpetually catching cold, more especially in moist or wet weather ; though they seldom have any other symptoms of such colds than the stoppage in and discharge from the nose ; they also always complain, that these colds always deprive them of the sense of smelling. In moist weather, or in a sudden change from dry to wet, they are also subject to frequent fits of sneezing ; and when the relaxed membrane is most affected, to very considerable discharge of thin mucus from the affected nostril. Nor do I remember ever to have seen a polypus of this kind, which was not immediately subject to a change, upon the sudden alteration of the atmosphere, from dry to moist ; that is, they always become longer, fall down lower, and look fuller and paler, and generally deprive the patient of all power of smelling.

in arriving at a very troublesome size, is most frequently an elongation of the membrane covering one of the ossa spongiosa: they are both capable of being extracted, and that with no kind of hazard, with very little pain, and hardly any hæmorrhage at all; but the former requires the least force, and most frequently comes away intire; while the latter often breaks, comes away piece-meal, and stands in need of the repeated use of the forceps.

From the preceding observations a few practical inferences may be drawn, such as the following:

First, That the polypi, under the first description, very rarely, if ever admit an attempt toward extraction, and that not merely from the improbability of its being attended with success, but because such attempt may be the cause of very disagreeable circumstances.

Second, That in those which do admit an operation, or the use of the forceps, the degree of success will depend principally upon two circumstances, viz. the benignity of the disease, and the degree and quantity of attachment; for although the nature of the complaint may be perfectly benign, yet it may happen, that a cure may not be attainable, and that merely from the degree and kind of attachment.

And,

Third, That the hæmorrhage so much talked of, so solicitously guarded against by writers, and so much dreaded by young practitioners, will not
often,

often, if ever, be met with, in such cases as fairly and properly admit the operation.

The polypus is a disease which, of all others, is said to be most difficult totally and perfectly to eradicate, and most liable to reproduction, this is, in some degree, true. It is difficult in many instances, to extirpate it totally, and it does often grow again, more especially that sort which springs from the *ossa spongiosa*; but yet, that is not so often the case, as it is supposed to be. It not infrequently happens, that there are, at the same time, two, three, or more different polypi, each of which is perfectly distinct from the others, and has a separable distinct attachment. When this is the case, the lowest or most anterior, having the open nostril before it, easily makes its way down, uncompressed, while the other, or others, are not only kept up, and out of sight, but are also considerably compressed.

When the one, which was within sight and reach, has been removed, the next falls downward, and soon becomes visible; if it was large and lax, and merely kept up by what lay before it, it is often to be seen immediately; but if it was small it may be out of sight, and can only be suspected by the passage of air through the nostril not being free, although the polypus, which was removed, came away perfect and intire; and when it does appear, it passes for a reproduction from the old stem, though it is really another and perfectly distinct polypus, of which the intire state of the investing membrane, and the separation of the polypus, from its single point

point of attachment, will, upon careful examination, appear irrefragable proofs.

It may perhaps be remarked that, in what I have offered concerning this distemper, I have confined myself merely to the operation of extraction only ; and have said nothing concerning the various methods and means which have been proposed for its destruction.

I am very sensible that many of our books are furnished with relations of attempts made by escharotics, and by a kind of medicated setons, some of which have been said to be successful. If I had ever found them so, I should have been glad to have related it, but I cannot say that I have ; on the contrary, all that I have done of this kind, or have seen done by others, has served more and more to deter me from practising it again. When the polypus is loose, and fairly circumstanced for extraction, it is not only the best method of cure, but is always adviseable, and very frequently successful ; but when from immobility, largeness of attachment, malignity of nature, or from any other cause, it becomes unfit for the use of the forceps, it is always, as far as I have been able to observe, still more unfit for caustic ; nor indeed do I remember a single case, which has been so circumstanced as to render the use of the forceps absolutely unadviseable, where the application of escharotics would not have been much more so, as experiment, in some of them, has fatally proved. The structure and irritability of parts within the nose, and the impossibility of confining the application, or limiting the effects

fects of caustic medicines, in such a part in whatever manner or form applied, are palpable objections à priori; and the very disagreeable consequences, which have been often found to follow from the inflammation and irritation, of what it was impossible totally to destroy, have been too serious to be slighted.*

The polypus sometimes, instead of falling down the nostril, makes its appearance backward in the fauces behind the uvula, in which case, the general method is, to extract it by introducing the instrument into the mouth instead of by the nose.

This, though sometimes practicable, is much more easily described than executed; and in some people will be found absolutely impracticable. The objection arises from the great difficulty of keeping the tongue down in some, and in others from their incapability of permitting any thing to touch the root of that part, or any part of the fauces, without immediately producing a spasm: to which might be added that, in some cases, the polypus is so expanded as almost to conceal the uvula, which is therefore liable to be laid hold of by the instrument, to the no small detriment of the patient.

However large, pendulous, or expanded such polypus may be, its attachment always is, and must

* The method by ligature, whether of silk or wire, is not attended with the inconveniences of the caustic, and is certainly practicable in some instances; but, as far as I have seen of it, is by no means equal to that by the forceps, either for its general utility, or its capacity of perfectly eradicating the excrescence. I know some ingenious practitioners, who approve of it; but I cannot say, from what has come within my knowledge, that it appears to me in so recommendable a light.

must be, within the cavity of the nose, and therefore always within the reach of a pair of forceps introduced that way, especially if the forceps be somewhat curved: and which, when the excrescence appears behind the uvula, will have one advantage superior to what it has when the polypus appears in the nose, which is, that it will be applied much nearer to the point of attachment, and, therefore, most likely to extirpate it perfectly.

I cannot leave this subject without cautioning the young practitioner to be exceedingly careful in examining and inquiring into all the circumstances previous to his undertaking a cure, lest he should find, too late, that he has gone too far to recede.

For want of such caution, I have seen hæmorrhages, which have been frightful, and inflammations which have proved fatal. I have seen a case, wherein an untoward-looking polypus, and which ought not to have been meddled with, has been so attached to a distempered septum nasi, that it has come away with it: I have seen the same thing happen with regard to almost the whole of the ossa palati: and I have more than once known a polypose thickening of the membrane covering the ossa spongiosa, and septum nasi, which in all probability, would have remained quiet a great length of time, so irritated by rough treatment, and successful attempts, as to render the remainder of the patient's life truly miserable to himself, and offensive to others.



C A N C E R

S C R O T I.

RAMAZINI has written a book de morbis artificum ; the Colic of Poitou is a well known distemper ; and every body is acquainted with the disorders to which painters, plumbers, glaziers, and the workers in white lead, are liable : but there is a disease as peculiar to a certain set of people, which has not, at least to my knowledge, been publicly noticed ; I mean the chimney-sweeper's cancer.

It is a disease which always makes its first attack on, and its first appearance in, the inferior part of the scrotum ; where it produces a superficial, painful, ragged, ill-looking sore, with hard and rising edges : the trade call it the foot-wart. I never saw it under the age

of puberty, which is, I suppose, one reason, why it is generally taken, both by patient and surgeon, for venereal, and being treated with mercurials, is thereby soon, and much exasperated : in no great length of time, it pervades the skin, dartos, and membranes of the scrotum, and seizes the testicle, which it enlarges, hardens, and renders truly and thoroughly dis-tempered ; from whence it makes its way up the spermatic process into the abdomen, most frequently indurating, and spoiling the inguinal glands : when arrived within the abdomen, it affects some of the viscera, and then very soon becomes painfully destructive.

The fate of these people seems singularly hard ; in their early infancy, they are most frequently treated with great brutality, and almost starved with cold and hunger ; they are thrust up narrow, and sometimes hot chimnies, where they are bruised, burned, and almost suffocated ; and when they get to puberty, become peculiarly liable to a most noisome, painful, and fatal disease.

Of this last circumstance there is not the least doubt, though perhaps it may not have been sufficiently attended to, to make it generally known. Other people have cancers of the same parts ; and so have others, beside lead-workers, the Poictou colic, and the consequent paralysis ; but it is nevertheless a disease to which they are peculiarly liable ; and so are chimney-sweepers to the cancer of the scrotum and testicles.

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If there be any chance of putting a stop to, or preventing this mischief, it must be by the immediate removal of the part affected; I mean that part of the scrotum where the sore is, for if it be suffered to remain until the virus has seized the testicle, it is generally too late even for castration. I have many times made the experiment; but though the sores, after such operation, have, in some instances, healed kindly, and the patients have gone from the hospital seemingly well, yet, in the space of a few months, it has generally happened, that they have returned either with the same disease in the other testicle, or in the glands of the groin, or with such wan complexions, such pale, leaden, countenances, such a total loss of strength, and such frequent and acute internal pains, as have sufficiently proved a diseased state of some of the viscera, and which have soon been followed by a painful death.

If extirpation ever bids fair for the cure of a cancer, it seems to be in this case; but then the operation should be immediate, and before the habit is tainted. The disease, in these people, seems to derive its origin from a lodgment of foot in the rugæ of the scrotum, and at first not to be a disease of the habit. In other cases of a cancerous nature, in which the habit is too frequently concerned, we have not often so fair a prospect of success by the removal of the distempered part; and are obliged to be content with means, which I wish I could say were truly palliative: but here the subjects are young,

in general in good health, at least at first ; the disease brought on them by their occupation, and in all probability local ; which last circumstance may, I think, be fairly presumed from its always seizing the same part : all this makes it (at first) a very different case from a cancer which appears in an elderly man, whose fluids are become acrimonious from time, as well as other causes ; or from the same kind of complaint in women who have ceased to menstruate. But be all this as it may, the scrotum is no vital organ, nor can the loss of a part of it ever be attended with any, the smallest degree of inconvenience ; and if a life can be preserved by the removal of all that portion that is distempered, it will be a very good and easy composition ; for when the disease has got head, it is rapid in its progress, painful in all its attacks, and most certainly destructive in its event.





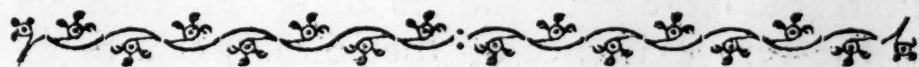
OBSERVATIONS

AND

CASES

RELATIVE TO

RUPTURES, &c.



SECT. I.

*Diseases of the Omentum, particularly Omental
Herniæ.*

THE general doctrine regarding these, is, that although they are sometimes troublesome from their weight and size, yet the omentum being insensible, and very little, if at all, necessary to vitality, they do not call

call for our immediate assistance, and never endanger the patient's life.

That omental ruptures are not attended with those immediately-hazardous circumstances, which necessarily accompany intestinal ones, is a truth beyond all doubt ; but that diseases of the omentum are of little consequence, or that this kind of rupture is so harmless, as never to bring the life of the patient into danger, and to prove positively, as well as eventually fatal, is a position which is by no means true.

Intestinal ruptures are, primarily and originally hazardous, and this hazard arises as well from the structure, as from the functions of the parts concerned. The tender membranes of the intestines are very little able to bear any considerable degree of inflammation ; and neither digestion of the food, propulsion of the chyle into, and through the lacteals, nor expulsion of the fæces from the large guts (offices absolutely necessary to the very existence of the animal) can be executed, while such stricture is made on any part of the intestinal canal, as either hinders its natural motion, or renders its tube impervious ; consequently whenever this happens, from whatever cause, the patient is immediately disordered, and brought into a state of hazard.

The omentum is not indeed so liable to injury, either from its structure, or from its office ; the dislodgment of it from its natural situation within the belly, or its engagement in a stricture, seldom produce any immediate, or very pressing symptoms ; and therefore its confinement with-
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in a hernial sac, has seldom been regarded as a matter of importance. Taken in a general sense, it certainly is not. The displacement of a mere portion of caul, from its natural situation, and the detention of it in the groin or scrotum, will not, in general, occasion any such interruption in any of the functions of the animal, or so disorder its internal œconomy, as to produce a considerable degree of pain, or hazard : but whoever from thence concludes, that omental ruptures are absolutely void of danger, will find himself much deceived : a more attentive observation of the disease, and of its effects, will inform him, that very considerable mischief sometimes attends them, and that the ill consequences of neglect or mismanagement, though perhaps less frequent, and less rapid, are not less real,

The ills which may attend omental herniæ, are of two kinds : one of which is primary or original, proceeds from the part which first formed the rupture, and is confined to it, independent of any other ; the other is secondary, or an accidental consequence, flowing indeed from the same original malady, but affecting other parts also.

The omentum is liable to inflammation, supuration, gangrene, mortification, and schirrhous, while in its natural situation within the cavity of the belly ; and each of these states is often the real, though most commonly unsuspected cause of very alarming symptoms, and not infrequently of death. It is not only liable to the same morbid alterations, when thrust forth from
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the cavity into an hernial sac, but the neglect or mismanagement of it, when there, is productive of these and other evils, which for want of a proper attention, have either been totally overlooked, or set to the account of other causes. Violent, or continued, pressure on it have produced inflammation with all its consequences; has brought on fever of a very bad kind, suppuration, flough, and sphacelus; long confinement of it, within a hernial sac, has occasioned such other alteration in its form and texture, as to render it truly a diseased body, and to produce many inconveniences from such its morbid state; and an undue, or interrupted circulation through it, by means of stricture, occasions, sometimes, such a collection of extravasated fluid, in the sac, as to render it a necessary object of a surgeon's attention; not to mention that the dragging down a larger portion of the caul, into the scrotum, proves sometimes more than merely disagreeable, by reason of its connection with the abdominal viscera.

These are ills, which arise from omental ruptures primarily, and are dependant upon the nature of the disease, considered abstractedly, without any view to, or any connection with any other. But there is another which, although it may be called secondary, or be considered as a consequence, is both frequent and hazardous.

When a portion of the peritoneum, forming a hernial sac, has been thrust quite down into the scrotum, I believe I may venture to affirm
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(notwithstanding what may have been said to the contrary) that it seldom or never returns back into the abdomen again, but becomes immediately, and wholly, connected with the cellular membrane, investing the spermatic vessels; so that whoever has once had such sac so protruded, can never have any security against the disease called a rupture, but what is derived from such means as may render the entrance into that bag, too small, to permit any thing to pass from one cavity into the other. Upon this principle, and on this only, stands the utility, and indeed the necessity, of Trusses and such kinds of bandages. By these in infants, and in young subjects, such a coarctation, or lessening of the entrance into the sac, is produced, that a firm and permanent cure is often obtained; but in the majority of adults, and in all people far advanced in life, such effect is not to be expected. It does indeed happen to some few, but it is to be regarded as an accidental benefit; and the bandage, being the only means, whereby a descent can be prevented, it ought to be constantly and unremittingly worn.

Whoever has a just idea of an hernial sac, must be convinced that while a body, or substance of any kind, possesses that part of it which communicates immediately with the belly, that such passage can never be closed: and, consequently, that the one point, in which even the palliative cure of a rupture consists, can never be accomplished.

A portion

A portion of omentum, although it be compressible, soft, and slippery, will, while it remains in such passage, keep it as constantly, and as certainly open, as any other body whatever; and from the very circumstances of its being soft, slippery, and compressible, will still more easily let any other body pass by it: a portion of the intestinal canal is frequently pressed against the mouth of this sac, and that with considerable force, the orifice being open, and the omentum affording but little resistance, the said portion is often pushed into the bag, and by this means a new, and still more interesting and hazardous complaint, is added to the old one.

This happens much more frequently than it is supposed to do: and is, in the nature of things, so probable, that no person, who has an omental rupture, can, for any the shortest space of time, be said to be secure against the descent of a portion of intestine; and consequently is always liable to every kind and degree of hazard attending an intestinal one.

C A S E I.

A Gentleman, about forty-three years old had, for some time, been subject to a rupture of the omental kind, which came down when he was in an erect posture, and went up with great ease when he lay supine.

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I reduced it, and put on him a truss, which answered the purpose very well, by keeping the rupture up all the while it was worn : but the patient disliking the necessary degree of pressure, and finding very little inconvenience from his disease, (it being merely a piece of caul) laid aside the use of his bandage, and suffered his rupture to take its own course.

Being obliged to take a long journey on horseback, and being apprehensive that his complaint might, by exercise in hot weather, prove troublesome, he had a mind to put his truss on again, not doubting but that he could replace his rupture as easily as he had been accustomed to do : he tried several times, but could not accomplish it : he came to me ; I tried, and was foiled. I repeated the attempt again, and again, but to no purpose, still being clear that the disease consisted only of a portion of omentum, and that not large.

From me he went to one of the advertisers ; who having, for a day or two, amused him with anointing his groin, put on him a bandage with a large, hard, bolster ; which being buckled very tight, he was permitted to begin his journey, and was told that, long before he returned, the portion of caul would be shrunk to nothing, and his disease thereby cured. He set out, and got about twenty miles, when he found himself so ill, and in so much pain, that he determined to come back to London ; which he accomplished with great difficulty.

I found

I found him in extreme pain all over his belly, which would hardly bear being touched; he was incapable not only of sitting or standing upright, but even of lying straight upon his back; he could hardly bear the weight of the bed-cloaths; and the most gentle pressure, toward the bottom of his belly, and his groin, was intolerable. The scrotum, and spermatic process, on the ruptured side, were swollen, tense, and inflamed; his skin was hot, and dry, his pulse hard, and frequent, and he had such a degree of restlessness, that although motion was very painful to him, yet he could not lie still for two minutes.

Notwithstanding the many opportunities which, before this accident, I had had of knowing the true nature of his rupture, and that I was perfectly convinced, that it had always been omental merely, yet from his acute pain, from the enlarged and inflamed state of the process, and from the nature and rapidity of his symptoms, I was much inclined to believe, that a portion of intestine had some share in the present mischief; but the patient who was a very intelligent man, insisted on it that it had not, and that all his present malady was caused by the pressure of the truss on the omentum.

I took away a considerable quantity of blood, and, notwithstanding the patient's opinion, directed a solution of the sal rupell. in infus. senæ to be taken immediately, and a purging glyster to be thrown up as soon as it could be got ready;

dy; for the parts were in such a state, that had there been more convincing marks of intestinal stricture, reduction by the hand was at that time impracticable, and unfit to be attempted. I saw him in about six or eight hours. The discharge, per anum, had been such as to put an end to all suspicion of stricture on any part of the intestinal tube, but his inflammatory symptoms were not at all lessened. I took away more blood, and would fain have put him into a femicupium, but the dread of motion prevented him from complying with it. His pain was excessive; and as he had now lost a very considerable quantity of blood, and had had a very free discharge by stool, I threw up a glyster of warm water, oil, and laudanum, and gave him two grains of extract. thebaic. by the mouth. He passed so bad a night, that he was glad, early in the morning, to comply with the use of the bathing-tub, by the repeated use of which, and taking care to keep the body open, by lenient, oily, remedies, he, at the end of four days, got to be easy.

Fomentation and poultice reduced the tumefaction in the groin and scrotum, and when they were removed, the rupture appeared to be nearly in the same state as before the accident, only a little larger.

Two years after this he died, and was opened; his rupture was found to be merely omental, and the portion of caul which formed it was, in its inferior part, adherent to the hernial sac in two places.

CASE

C A S E II.

A Young man, who worked as a journeyman with a silver-smith in Foster-lane, came to me three or four different times, on account of a rupture, which appeared to have every mark of being merely omental.

It was large, and had, as he said, been for some years easily reducible; but it was not at all so at his last visit to me. By a late increase of size and weight, it was become very troublesome, as well as very visible. Finding reduction impracticable, I recommended to him the use of a suspensory bandage, and gave him directions for his general conduct.

At the distance of about six months from his last visit, I was sent for to St. Bartholomew's hospital in a hurry, to a person supposed to labour under a hernia with stricture.

I found a man, who was only not dead; he had a dying countenance, a faulting pulse, a constant hiccough, and cold extremities.

As it did not appear to me, that it was possible for me to do him any service, I was going away, but was called back at the patient's particular request. He made himself known to me to be the person I have just mentioned; and a friend, who was with him, gave me the following account:

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That a few days before, having an intention to marry, and believing that his rupture would be prejudicial to him, he had applied to somebody who had been recommended to him, for relief : that the person to whom he applied, having received from him such gratuity as he could afford at that time, in part of payment, had promised to cure him within a month : that he anointed him for two or three days with an ointment, and then put on him a very strict bandage : that he was ordered to wear this bandage constantly, day and night : that when he had worn it three days, not being able longer to endure the pain it caused, he took it off, and went to his surgeon, who seemed to be surprized ; and bade him go home, apply to his groin and scrotum a poultice made of boiled turnips and hog's-lard, and come to him again the next day : that the inflammation and swelling increasing, he was prevented from fulfilling the last injunction, and therefore sent for his operator, who came to him, examined the parts, said he had got the pox, and refused to do any thing more for him without the deposit of another five guineas, and that not being able to comply with this demand, his friends had brought him to the hospital.

The scrotum had been of considerable size, but was now subsided ; it had been very painful, but was now easy ; it was in many places livid ; and, upon handling, the fingers perceived that alarming crepitus, which infallibly denotes putrid air from gangrenous membranes.

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When I saw him in health, I was perfectly satisfied that his rupture was merely omental; I was as much satisfied, that his present state was owing to his bandage; but nevertheless I cannot but say, that I suspected a piece of intestine to have slipped down, and to have occasioned this fatality by being pressed on.

I inquired into his discharge by stool, and was told, that he had a large one within the last two days, but having often experienced how liable people are to deception, in these cases, I did not give intire credit to the account.

That evening he died, and next morning he was opened.

The scrotum and hernial sac were completely mortified, and within the latter, was a small quantity of a most exceedingly offensive sanies, together with a large piece of sphacelated omentum only. The whole intestinal tube was within the belly perfectly sound, and in good order, but the omentum within that cavity, had partaken considerably of the mischief done to that part of it which was in the hernial sac, and was gangrenous throughout.

C A S E III.

I W A S desired to visit a gentleman at Hackney, who had, for some years, been afflicted with a rupture, which, at different times, had been examined by Mr. Sainthill, Mr. Samuel Sharpe,

Sharpe, and others ; and had, by every body, been deemed to be merely omental. For some years it had been kept up by means of a steel truss ; but, a few months before I saw him, he had laid aside his truss, and had put on a dimoty bandage, with a large bolster, which he had worn very tightly buckled. How he had managed himself in other respects, I know not ; but I found him with his groin and scrotum much swollen, and very painful to the touch ; he was hot and feverish, and had been two days without a stool. The state of the parts was such, that an immediate attempt to reduce the rupture by the hand was impracticable, at least could not have been attended with any probability of success. He was immediately let blood, had a glyster, and an aperient draught. Next day I found him worse, in more pain, with more inflammation, and a greater degree of tumefaction, and had not yet had a stool. I was obliged to depend upon the patient's own account of his case previous to this attack. He insisted on it, that his rupture had never been intestinal, and that everybody who had seen it, had given him that assurance. This I could not contradict, but was, at the same time, much inclined to believe, that a portion of intestine was down now. The cataplasm was applied over the whole scrotum and groin, a stimulating glyster again thrown up, and a purging mixture ordered to be taken, cochleatim, every two hours, until he should have stools, but all to no purpose.

On the third day he was worse in every respect ; his belly exceedingly tense, his pain great, his restlessness fatiguing, and he felt not the least tendency towards a discharge per anum.

I proposed the operation, but the patient and his friends objected. A glyster, of an infusion of tobacco was administered. This produced such sickness, and languor, with cold sweats, &c. as alarmed every body, but produced no stool.

Late in the evening, he submitted to the operation. The parts were now so altered, that I guarded myself with a most doubtful prognostic. I made an incision from the groin, to the bottom of the scrotum ; the skin, dartos, and hernial sac, were all gangrenous ; and from the cavity of the sac, I let out a considerable quantity of a most offensive sanies, and with it, a large putrid slough, which appeared to have been part of the omentum. I examined the opening in the abdominal muscle, and was satisfied that it was in a natural state, and that nothing from the abdomen was engaged in it. On which account I did not meddle with it, but, having dressed the wound superficially, put on his poultice again. Dr. de la Cour was present at the operation, and directed for the patient. Another day passed without stool, and this I thought must have been his last day, but on the fifth he had a most plentiful discharge, and was thereby relieved from the tension of his belly, and his most troublesome symptoms.

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The fore was a long time crude and unkindly, but by means of the bark, and proper diet, all difficulties were surmounted, and the patient got well.

Had a piece of intestine been in the sac, it must, I think, have necessarily partaken of the state in which both it and the omentum were; and although the patient might possibly have survived, yet a discharge of fæces through the wound must, at least for a time, have been the consequence; but here was nothing of that kind, nor any reason, after the constipation was removed, to suppose that the intestine had ever sustained any injury, or had any share in the complaint.

C A S E IV.

A M A N, about fifty-five years old, asked my opinion concerning a hard swelling, which he had on each side, both in the groin and scrotum.

To the eye they appeared like omental herniæ; but, upon examination, they were not only unequal in their surface, but craggy, and incompressibly hard.

The patient said, that, at the time of handling them, they gave him very little uneasiness, but that such handling always made them painful for some time after: that he was, at times, attacked

with acute pain darting through his belly, up into his loins, and that such attack was frequently attended with a nausea, and an inclination to vomit; that he had been subject to a painful cholic, attended generally with constipation of belly: that an erect posture, if continued for any length of time, was very irksome: that these swellings were, for several years, soft and easily returnable into the belly: that while they were so, he had, by the advice of Mr. Samuel Sharpe, worn a steel truss, but that being engaged in a bustling, active kind of life, and the truss not always doing its duty, he had left it off for some years. That for the last two years, he had never been able to return either of them, since which they had altered very much: that, in their present state, he had consulted several of the profession, and some quacks: that by some they had been deemed schirrhous testicles, by others, schirrh of the spermatic processes: that he had gone thro' a course of mercurial inunction; had taken freely of the solution of sublimate cu. decoct. rad. sarsaparillæ, and had (in his own phrase) swallowed a wheel-barrow full of cicuta; that he had been promised a cure by having them laid open, to which he had submitted, had not the operator been too lavish in his promises, and too exorbitant in his demands; and that frequent attempts had been made to soften them by fomentation, poultice, &c. but all to no purpose.

He had a fallow complexion, a languid fatigued look, a weak, irregular pulse, too much heat and thirst, and too little urine: upon the whole,
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he seemed a very improper subject for any chirurgic treatment, if any could have been rationally proposed; but as it did not appear to me that any thing of that kind could be done for him, I advised him to keep his scrotum suspended, and to consult a physician on account of his general state.

Not long after, his legs swelled, he lost his appetite, and his urinary secretion almost totally ceased. The consequence of which was, a general anasarca, and death.

In each groin, and on each side in the scrotum, was a hernial sac, bearing all the marks of antiquity; in each of these was a hard, knotty, irregular kind of body, whose surface was covered with varicous vessels.

These bodies passed from the cavity of the belly, through the opening in the abdominal muscle, were continuations from the omentum, and were truly cancerous.

C A S E V.

THAT the residence of a portion of omentum, in an open hernial sac, must render the patient constantly liable to the descent of a portion of intestine, is so self-evident, that it cannot admit the smallest doubt, but the following case being rather remarkable, I have inserted it.

A drunken,

A drunken, idle, fellow, who lived in the neighbourhood of St. Bartholomew's, used to come frequently to the surgery for pledgits for broken heads, &c. He had also a small omental hernia, as fairly and decisively characterised as possible. Myself, and all the surgeons had, at different times, replaced it for him, and the hospital had, once or twice given him a truss; but being much oftner drunk than sober, he seldom wore it at all, and when he did it was seldom in the right place.

One day, while I was at the hospital, he was brought in with an immense swelling of the scrotum, and all the symptoms of a hernia with stricture, and those so far advanced, that he had no chance but from the operation, which I therefore performed immediately.

In the sac was a considerable portion of the ileum, and a large piece of the colon with the appendicula vermiciformis, together with the small piece of omentum, which had constituted the original rupture. The parts were mortified, and the man died.

Unless it can be supposed, that so large a quantity of intestine could, by every body, be mistaken for a small one of omentum only, it must be clear, that the residence of that small piece of omentum gave the opportunity for the formation of the intestinal hernia, and cost the poor man his life; more especially if it be noted that the increase of tumefaction, and attack of bad symptoms, were the immediate consequence of an exertion of strength.

C A S E

C A S E VI.

WHILE I was correcting these papers for the press, I was desired to go down to St. Katherine's to see a patient, who was supposed to be afflicted with an incarcerated hernia.

I found a man between sixty and seventy, whose scrotum was large and full; and, as I thought, contained both omentum and intestine.

It was the third day since he had had a stool, although gentle cathartics had been given each day. His pulse was rather full, but otherwise not much amiss; he had now and then an inclination to vomit, and his belly was very tense; but, on the other hand, he had neither the sensation of general or local pain, either upon being examined, or put into motion, which persons labouring under a stricture, most commonly have; neither had the spermatic process the feel which it usually has in such cases.

I could not say that I thought him in immediate hazard, although the irreducibility of his rupture, and the length of time which had passed since he had a stool, were certainly unfavourable circumstances. I directed a tobacco glyster to be given immediately, and five grains of extractum catharticum to be taken, alternis horis until he should have a stool. The glyster

ter was administered and repeated, and the pills were taken, and I visited the patient early the next morning.

He had not had any discharge per anum, his belly was become much more tense, and I thought him, upon the whole, so much worse, that I proposed the operation, and the patient submitted to it.

In the hernial sac was a large piece of omentum, or rather of what had been omentum, but which was now hardened into a large, flat, cake, as incompressible as cold bees-wax, and about the size of a large mangoe ; it distended all the upper part of the sac, and was adherent to the lower part of it : behind this large body lay a portion of the intestinum ileum, and below this, that part of the colon which is annexed to it : the colon was considerably distended with flatus, and the ileum was so wedged in and pressed, by the altered omentum, that nothing could possibly pass through it : when the portion of omentum was removed, the tendon made so little stricture on the gut, that, had it not been for the great distention of the colon, it might have been returned into the belly without division.

In short, the constipation of belly, and mischief proceeding from thence, seemed to arise intirely from compression made by the hardened omentum, and not from a stricture.

In my general treatise on ruptures, I have ventured to dissent from the commonly-received

ed doctrine concerning the propriety of tying the omentum, previous to its extirpation, when it may be found necessary to remove a part of it ; and have said, that I thought it not only unnecessary, but pernicious.

Perhaps I may have conceived an unreasonable prejudice against this practice, and it may not appear to others so hazardous, or so improper, as it does to me ; perhaps the cases which follow, and which are some of those that have furnished me with my objections, may not be thought cases in point ; and the miscarriages in them, may be thought to be deducible from other causes : all I can say is, that it appeared to me, that the patients suffered principally, if not merely, from this cause ; and that as I am by repeated experience convinced, that a portion of the omentum, however large, may be extirpated with perfect safety, without being previously tied, I shall never practice, or advise the ligature.

C A S E VII.

A M A N, about thirty years old, was taken into St. Bartholomew's hospital for a considerable swelling of the groin and scrotum.

The account he gave of himself was as follows : That he had had, for several years, a rupture, which many surgeons, who had seen it,

it, had deemed to be merely omental : that he had formerly had a truss, but whether from its being ill made, or from his injudicious manner of wearing it, it had never kept his rupture properly up, and he had long disused it ; and that the day before he was brought into the hospital, a horse had kicked him in the groin, and brought on that increase of pain and swelling of which he now complained.

It was Mr. Nourse's week for accidents, and he consequently took the care of him. He was let blood, had a glyster, and a poultice was applied.

The next day the swelling was the same, and the man had not had any stool. A purge was administered, which he ejected by vomit ; and another glyster was injected in the evening. On the third day, finding that nothing had passed, Mr. Nourse suspected, that the intestine was concerned : he bled the man again largely, and ordered two spoonfuls of a purging mixture to be given every two hours, until he should have stools. That evening he vomited two or three times, and next morning being still without a stool, Mr. Nourse determined upon the operation.

The hernial sac was found, thick and tough, and contained a portion of omentum, and some bloody water. Mr. Nourse and myself both examined the omentum, carefully, upon a supposition that we should find some intestine within it. It was perfectly sound, but its vessels were considerably dilated : there was no intestine,
nor

nor did the tendon bind upon the omentum. As there was no gut down, and as the portion of caul was now too large to repass the ring, Mr. Nourse made a strict ligature on it, just on this side, and cut it off.

Soon after the operation, the man had stools, but, during that night, got little or no sleep and complained of much pain. The next day he was worse, was feverish, complained of great pain about his navel, and that he could not sit, or stand upright, but had two loose stools.

On the third day he was still worse, that is, had more fever, complained that his pain in his belly was excessive, and could keep nothing on his stomach. On the fourth day, toward evening his pain suddenly left him, and, early the next morning, he died.

Mr. Nourse, who was still apprehensive that the intestinal canal was some way or other concerned in the mischief, desired me to open the body.

The abdominal tendon was found and unhurt, nor was there any such appearance about the wound as always accompanies mischief proceeding from thence: the intestines were perfectly free from blemish, inflammation or obstruction, nor was there any appearance of disease of any kind on or about any of the viscera, except the omentum, which was gangrenous through its whole extent.

What share the inflammation of the omentum might have in preventing a free passage thro' the intestines I know not, nor to what other cause such obstruction might possibly be owing; but, that

that the omentum was found, at the time of the operation, and gangrenous when the patient died, is beyond all doubt.

C A S E VIII.

A M A N about forty years old, who had for several years been afflicted with a rupture, which had always been deemed to be merely omental, was brought into St. Bartholomew's hospital, labouring under all the symptoms of an intestinal hernia, with stricture; and those so pressing, that the operation immediately performed was his only chance.

Upon dividing the sac, a large piece of omentum (which was considerably thickened in its texture, and whose vessels were considerably distended) presented itself. This was carefully expanded, as far as it would admit, and laid first on one side, and then on the other, but no other body discovered. The incision being continued higher up, in order to get at the ring, as it is called, a portion of intestine was discovered; it was so small as hardly to consist of the whole diameter of the gut, but begirt very tightly. I had, when the intestine was fairly in view, a mind to try whether I could not return it without dividing the tendon, and succeeded in the attempt. When this was done, the consideration was, what to do with the omentum. It was so large, and so affected by stricture, that it could not repass the abdominal

abdominal tendon without division : as the gut was returned, it seemed a pity to divide the tendon merely on account of the caul : it was therefore determined to tie it, and cut it off.

The man had a plentiful stool in an hour after the operation, but toward evening, and during the night, was much out of order. Next morning he was hot and restless, had a frequent and full pulse, complained of great pain about his navel, and all over his belly, which was much too tense, and he was now and then very sick.

Blood was drawn from him freely, he had an oily, laxative glyster, and Dr. Pitcairn directed for him. On the third day, all his febrile symptoms, and his pain, were much exasperated, notwithstanding he had three or four stools.

I think I may venture to say, that both the physician and myself, did every thing in our power for him, but on the fourth evening he died.

As the case had given me some concern, upon a supposition that the man might have had a better chance, had the tendon been divided for the return of the gut, I opened him as soon as I had notice of his death. I examined the whole intestinal canal, and found it free from blemish, the peritoneum was unaltered ; but all that was left of the omentum was gangrenous.

C A S E IX.

A M A N, about thirty-six years old, was a patient in St. Bartholomew's for a fore leg. While he was there, he desired me to look at a rupture, which he had long had, and which was clearly omental, and irreducible.

When his leg was well, he desired me to cut him as he called it, alledging, that his rupture was so troublesome that it prevented him from following his business. I refused it, and directed him to wear a suspensory bag.

He solicited me again and again, and, at last overcome by his importunity, I performed the operation. The sac was thin, and the piece of omentum not large, nor at all altered, nor was there any thing else in the bag. I made a ligature and cut it off without meddling with the tendon. From the time of the operation, he was in constant pain all over his belly.

Bleeding, laxative medicines, glysters, &c. were administered, but to no purpose. On the fourth day he died, and had no appearance of mischief about him, except a highly inflamed omentum.

Intestinal Herniæ.

WHEN a portion of intestine, which has passed out from the cavity of the abdomen through the opening in the oblique muscle, is so begirt as not to be capable of executing its proper office, the person, to whom this happens, may be said to be in immediate danger.

The general offices of the intestinal tube are, digestion of the food, formation of chyle, impulsion of it into the lacteals, and expulsion of the fæces forth from the body. If these so necessary functions are, for any considerable time, suspended, or prevented, the consequence is too obvious to need mentioning: fortunately for mankind, this cannot happen unknown to us. Whenever such stricture is made, symptoms and complaints arise, which warn us of our danger: pain, tumefaction, and incapacity of going to stool, are the first and most immediate effects; if the case be neglected, or no proper remedy used, inflammation, fever, sickness, and vomiting soon follow; and these are often, in a short space of time, succeeded by hiccough, gangrene and mortification. Whoever considers, what the first of these are indications of, and knows what will inevitably be the consequence, if they be not obviated, must be sensible, that the very slightest attack of this kind ought to put us on our guard, and excite

excite us to use our utmost endeavours to prevent farther mischief. How long the first, and seemingly slightest symptoms may continue, before material injury be done, no man can pretend to say; this must depend upon a variety of circumstances, and will be different in different cases; but as no man can be duly and intimately acquainted with these circumstances, and as the change from the most slight, to the most hazardous, is sometimes very rapid, no one can be vindicated in suffering the smallest portion of time to be lost by waiting a few hours.

The first thing to be done is, to attempt the reduction of the intestine; if this fails, our next endeavour must be to relieve the symptoms, and thereby remove the obstruction to such reduction.

The means prescribed for this purpose are, phlebotomy, glysters, cathartics, a semicupium, or warm-bath, fomentation, embrocation, and cataplasm; and these, by the generality of our writers of systems and institutes, are ordered indiscriminately, as if their efficacy were nearly equal, and it was a matter of indifference which a practitioner made use of. This I cannot conceive to be true; some of them are really useful; but others, as far as my experience goes, of little or no use at all; among the former, I reckon phlebotomy, cathartic medicines, glysters, and the warm bath; among the latter, embrocation, fomentation, and poultice; the former have saved many a life; from the latter,

latter, I never saw any material benefit, tho' I have often and often tried them; and I am much inclined to believe, that the use of them has cost many a person dear, by occasioning a loss of that time, which ought to have been otherwise employed. The inflammation, and distention of the intestine, can never be removed while it is begirt by the tendon of the abdominal muscle; whatever may be the original cause of the stricture, the effect must be the same; the tendon lies out of the reach or influence of a greasy poultice; the external skin may indeed be relaxed by it, and some small part of the uneasiness may thereby be relieved, but this is of no importance toward appeasing the symptoms, lessening the hazard, or affording a remedy for the original evil: the mere relaxation of the skin will not affect the stricture made by the tendon, the warmth of the poultice will increase the distention, and the intestine will become gangrenous, notwithstanding a small part of the external inflammation may seem to be appeased.*

If the symptoms are neither such, nor so pressing, as to require the chirurgic operation; or if the fears and apprehensions of the patient, or of friends, prevent such operation, however necessary it may be, the most powerful, and

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most

* Cold, discutient applications, bid much fairer to retard the hasty progress of the inflammation, than warm ones; and will be found to answer the purpose much better. Such as solutions of sal ammoniac. crud. in vinegar, the sp. mindereri, the acet. lythargirit, and such like.

most efficacious means of obtaining relief are, phlebotomy, warm water, and the exhibition of such medicines as are likely to produce stools : by the first we reduce the strength of the patient, lessen the velocity of the circulating fluids, moderate the febrile heat, and take the chance of a deliquium ; by the second we endeavour to relax the tendinous opening by which the intestine is begirt ; and by the third, the discharge of fæces, through the intestinal canal, is attempted. The power of the two first is clear and undoubted, but I cannot help thinking, that we are, in some degree, wrong about the last. Cathartic medicines have, in all times, been prescribed in the case of hernia with stricture ; but the true intention, which ought by their means to be aimed at, does not seem to have been, in general, clearly understood ; this perhaps is the reason why practitioners and writers disagree so much about the kind of medicines which they think most proper ; some advising those which are of the lenient, unirritating kind, others prescribing those which are most stimulating : both cannot be right, and therefore it may be worth while to enquire, what should be the point aimed at, and which are the most likely means to accomplish such end.

Is a discharge, per anum, the primary view, and therefore the first object of attention ? or is such discharge to be regarded only as a necessary, or natural consequence of the removal of the intestine from its prison ? If the former be

be the case, it is clear, that in the circumstances in which such patient must be, stools cannot be procured too soon, or by means which are too easy; and that such medicines as are most likely to slip through without stimulus, or irritation, must be the most proper, and most likely to answer the end: but if the case be otherwise, if the first view should be to extricate the gut from its stricture, and the discharge of fæces is to be regarded only as a necessary consequence of such removal, then, I think, it is as clear, that such lenients are unfit, because unequal to the task; and that a power or faculty of stimulating or irritating the muscular coat of the intestinal canal, ought to be the property of whatever is administered.

That a depletion of that canal is a great and immediate relief to the patient, by unloading the belly, and lessening the tension, is beyond a doubt; and it is as true, that without such discharge, the patient must perish, even though the stricture be taken off; but still the two objects are distinct and different, and the removal or extrication of the imprisoned piece is clearly the first.*

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When

* It may not improperly, in this place, be asked, whether the operation of a purging medicine may not be different from either of these? and whether it may not be in an incarcerated hernia what it sometimes is in an ileus, where it often seems to act by overpowering that spasm which had begun to excite inflammation, and would soon bring on mortification? What still adds force to this method of reasoning is, the consideration of the great relief always obtained from a warm bath. Whether this be generally true or not,

When purgative medicines of any kind are given by the mouth, in the case of a strangulated hernia, and do not succeed in removing the intestine from the stricture, they are either rejected by vomit or by deriving an increased quantity of acrimonious fecal matter downward, add to the pain and tension of the belly.

This is a very material objection to the use of all cathartics, given by the mouth, and more especially to those whose bulk, or quantity is at all large, and renders the application of such kind of medicines, to that part of the intestinal canal which is below the stricture, much preferable.

Indeed the superior advantages of stimulating medicines, given per anum, are, in this case, many and great; they give much less disturbance to the stomach, they occasion no pain in the belly, nor do they at all increase the load or tension; they may be repeated frequently, and what is of the most consequence, they may consist of such materials as cannot properly, or indeed safely, be given by the mouth. All these are manifest advantages, but the last circumstance is peculiarly so, for the tobacco-smoke cannot possibly be swallowed, nor would any man in his senses think of putting the infusion into the stomach, although it is well

not, it is certainly well worth consideration. May not from this also be inferred, the reason why opium, joined with purgatives, is sometimes, in the same disease, found to render the operation of the latter more successful.

well known, not only that both may be very safely administered in the form of glyster, but that they are the most powerfully efficacious, and the most useful medicines we are acquainted with, for such purpose.

I have mentioned the smoak and the infusion of tobacco, as being equally useful, and have, from repeated experience, found them so.

Where a proper machine is at hand, or can easily be procured, I should certainly prefer the smoak to the infusion; because, the effects which both are apt to produce on the nervous system of the patient are, I think, lighter in the former, than in the latter; but where such machine has not been at hand, nor could be procured without a loss of time, which, in these cases, is always precious, I have frequently used the infusion, and generally very successfully. The symptoms arising from the intoxicating quality of the tobacco, the languor, the cold sweat, &c. which this weed causes, more especially in those who have not been accustomed to it, are, as I have said, I think, rather more from the infusion than from the smoak; but, though I have often used it, I do not remember ever to have seen any ill effect from it; it generally makes the patient very sick,* and produces a fainting and a cold sweat, which to those who do not immediately reflect on the
intoxicating

* The infusion, which I have always used, has been made by pouring one pint of boiling water on one drachm of tobacco.

intoxicating quality of tobacco, and the symptoms of such intoxication, may appear alarming; but whether it be from the swooning, or from the irritation made in the intestinal canal, or, which is much most likely, from both conjointly, I have, several times, seen ruptures, which have resisted all attempts by the hand, return of themselves, untouched, during the influence of such glyster.

Many other stimulating applications to the rectum, I have, at different times, made trial of, but never found any at all equal, in effect, to the tobacco; nor did I ever see any of them produce that convulsive motion of the muscles of the abdomen, which most frequently accompanies the sickness attending the use of this weed, and which although fatiguing and troublesome while it lasts, yet is certainly one of the means whereby the extrication of the portion of intestine is accomplished.

I have also several times seen them both fail, after fair and repeated trial. Whoever expects infallibility in medicine, will be disappointed; but I can, with truth, affirm, that I have seen both the smoak and the infusion succeed much oftener than any thing else, and sometimes in very desperate cases.

C A S E X.

I WAS desired to visit a ruptured patient with Mr. James, then surgeon to St. Luke's hospital.

The patient was a stout, healthy man, about thirty; the rupture was large, hard, painful, and beginning to be inflamed on the outside; no stool had passed for two days; the man had great pain all over his belly, and a frequent vomiting. Mr. James had, many times, tried to reduce it; he had bled him freely, and had given both purges and glysters, but all without effect.

The scrotum was exceedingly tense, and the pain which attended the most gentle handling was so exquisite, as not only to render all attempts for reduction, by the hand, improper, but hazardous.

It was about noon when I saw the man, every thing except the tobacco had been tried; the symptoms were advancing hastily, and the operation was proposed and submitted to; but while our things were getting ready, we thought we might as well try the smoak-glyster.

One ounce of tobacco was expended without any effect at all, either general or local, but toward the consumption of another, the patient became sick and faint, and complained of a strange kind of motion in his belly, and also in his rupture. Upon turning the bed-clothes back, the
motion

motion was not only to be felt within the scrotum, but was even visible; this motion continued about two minutes, when the intestine, without being touched, returned; the man became immediately easy; and, in half an hour, had a plentiful discharge per anum.

C A S E XI.

IN the month of September, 1767, I was sent for in a hurry to some little distance from London, in order to perform the operation for the bubonocoele.

I found a very large rupture, on the right side, and that in so painful a state, as not to permit the most gentle handling. The patient had been treated with the greatest propriety; had been freely and repeatedly let blood, had taken purging medicines, glysters, &c. and had been several times in a bathing-tub: his vomiting was frequent, he had a tendency to a hiccough, and he could not bear to extend, in the smallest degree, the thigh on the ruptured side.

The operation had been consented to, before I had been sent for; but upon my asking the gentleman who attended, if he had a machine for giving the tobacco-smoak glyster, and being answered in the affirmative, we determined to try it first.

When about half an hour had been spent in the continual impulsion of the smoak, the man
cried

cried out, My rupture is going up; and, in the space of two or three minutes, it did so, with a noise which was heard by every one in the room.

C A S E XII.

A Gentleman, whom I had long known, had often shewed me a rupture, which he had laboured under as long as he could remember, and which was now and then troublesome to him, because he could not wear a truss to keep it within the abdomen. It was of the congenial kind, that is, the sac of the hernia was formed by what should have been the tunica vaginalis testis, but his testicle, on that side, had never descended from the groin, but lay just on the outside of the abdominal opening, neither had the portion of intestine got any lower, so that both of them lay together, on which account he not only never could wear a truss, but even the waistband of his breeches, if buttoned tight, was troublesome.

This gentleman was suddenly seized with the symptoms of a stricture, and those not slight, even at the first attack. The piece of intestine, though always in the groin when he was in an erect posture, had always gone up upon his going to bed, and was always returnable when he was in a supine one. He tried now to reduce it
as

as usual. He sent for me, and all my attempts were equally successful. His belly was very hard, he began to vomit, and the testicle became very painful to the touch.

All the circumstances were disagreeable, the symptoms advanced with uncommon rapidity, the portion of gut was small, the testicle inflamed, and somewhat enlarged, an operation might become necessary, but could not, in such circumstances be desirable.

He was bled freely, even to swooning, purging medicines were given, and immediately rejected, glysters had no effect, but were as immediately returned, and the patient knowing his own situation, was much alarmed.

Dr. de la Cour, who was his physician, was called in; and having tried the tobacco-smoak, ineffectually, we agreed to throw up a pint of the infusion, made as before related. It soon made him exceedingly sick, and faint, and caused a large discharge of wind, upward and downward, from which I expected a return of the gut, but in vain. At the distance of an hour or two, the infusion was repeated, with the same effect of faintness and sickness, during which, he was put into warm water, and when he had been in it a few minutes, the slightest application of the hand obtained immediate reduction, and stools.

C A S E XIII.

TH E late Mr. Fullager, desired me to go with him to see a wine-merchant in Billiter-lane, who had all the symptoms of strangulation in the case of a scrotal hernia, and whose rupture he had ineffectually endeavoured to reduce. I tried and was also foiled. The symptoms were rather pressing. Mr. Smith, in Cheap-side, who had been the apothecary to Mr. James's patient, was also apothecary here. It was determined, that I should meet Mr. Fullager again, in about three hours, in order to perform the operation; and that in the mean time, Mr. Smith should throw up the tobacco-smoak. At the appointed time, we met, and found Mr. Smith employed as we had desired; I laid my hand on the rupture to examine the state of it, and it was wonderful with what facility it went up.

The same thing, exactly, happened to me with a coachman of the late Dr. Nicol of the Charter-house, but the same man, upon a return of the complaint at about two years distance, was not again so fortunate, the smoak and infusion both failed, and the operation was performed; but too late.

It is as yet, with many a disputed point, in the case of incarceration of a portion of intestine in a
hernia,

hernia, whether the stricture, made by the tendon, be original or consequential; or, in other words, whether the disease be not originally in the intestine, and the stricture a mere effect of its dislodgment, and distention. The arguments used in support of the latter opinion are by no means void of force, but, at the same time, I cannot think them conclusive. The perfect health and ease of many, nay of every body, immediately before a *sudden* descent, the very pressing and alarming symptoms with which such descent is often attended almost instantaneously, and the relief which reduction immediately produces, in the majority of such cases, together with the immediate and total removal, or dissipation of all the evils occasioned by the confinement, seem to prove the general opinion to be true.

On the other hand, the perfectly quiet, easy, and uncompressed state of the parts, in many instances, immediately previous to the invasion of bad symptoms, in cases where there has been no exertion of strength, nor any apparent accession of a larger, and new portion of gut, are circumstances which, added to the incapacity of the tendon to contract, are well worth weighing, as they certainly give force to the former supposition.

As a mere point of speculation, it is not perhaps a matter of very great importance, but, when considered as applied to practice, and influencing our conduct with regard to the chirurgic operation, it becomes very interesting indeed.

When

When the hand and the common means for reduction fail, the operation is our only resource, and, if applied to in time, very seldom fails; so seldom that, I believe I might venture to say, not one in fifty * dies of it; if timely and judiciously executed; and when it becomes absolutely necessary, it is the unicum remedium. This consideration renders it a matter of still more importance; for, as in cases where it becomes necessary, and our only hope, it ought always to be proposed; for the same reasons, in cases where it is not necessary, it ought not to be thought of; and where it cannot be of use, it ought not to be done.

The intestinal tube, whether within the belly in its natural situation, or thrust forth from it in the form of hernia, is liable to diseases whose symptoms are peculiar to itself. Where there is no hernia, nobody doubts concerning the nature of the case; but where there is one from the similarity of the symptoms, it always takes the blame; often deservedly, sometimes much the contrary.

In the case of old, unreduced hernias, there is no reason why the portion of intestine, forming such complaint, should be exempt from such distempers as the canal is liable to; on the contrary, it is reasonable to suppose, that by such unnatural situation and confinement, it would become rather more liable. But, be this as it may, certain it is, that inflammation of the intestine, violent distention of it, with loss of peristaltic

* I mean of the operation considered abstractedly.

ristaltic motion, and stoppage of stools, is sometimes the case in a hernia where the abdominal tendon has no share in the mischief; and as certain it is, that in such case, the operator can do no good. In some instances this may, by attentive inquisition, be learned, and the operation thereby preserved from a disgrace: in others, it can only be known by its proving unsuccessful.

When the disease is the mere consequence of stricture, and the gut, previous to such stricture, was free from distemper, it seldom, I might almost venture to say never happens, but that the setting it free is followed by a discharge per anum; especially if such intention be properly assisted: but when the disease was originally in the intestine, and the intestine either not bound by any stricture, or a stricture the mere consequence of the previous distemper of the gut, it most frequently happens, that such discharge does not follow the operation, nor is obtainable by any means after it. This I have always regarded as a characteristic mark of the true nature of the malady; to which I think, from what I have seen of those cases, I might add another, which is the great difficulty, and in some cases, impossibility of keeping the reduced intestine (after the operation) within the belly. A circumstance which I have seen sometimes to be absolutely impossible. In the cases where all the mischief arises from the mere prolapsus and stricture, the returned intestine becomes immediately pervious, and enjoying

joying its peristaltic motion keeps its place, and does its office ; but where, by previous distemper, it is rendered impervious, and deprived of its motion, it cannot execute its office, it remains violently distended, and is, with great difficulty, kept within the belly, of which I could give many instances. This is, on several accounts, a matter of importance, both to patient and surgeon : with regard to the former, it is not merely the alarm, anxiety, horror, and pain, which necessarily attend an operation of such kind, and of such serious consequence, and which of themselves, are surely enough ; but the distemper not residing in, nor being produced by the stricture, the necessary symptomatic fever, attending such an operation, must, in the nature of things, be a circumstance of additional hazard : and, with regard to the surgeon, the difficulty of returning the distended intestine, and of keeping it in the belly after it has been returned, together with the most frequent, and indeed most probable event of such case, render it very unpleasant, and what every man would choose to avoid. No man can command success, but every man would wish to be in the way of it.

Con-

Congenial Herniæ.

TH E difference between these and other ruptures, is not a matter of mere anatomical speculation, there are in the former several particularities which require a practitioner's very serious attention, and which an operator ought always to be aware of.

The sac of a common hernia, every one knows, is formed by the protrusion of the peritoneum, through the natural opening in the tendon of the external, oblique, muscle of the abdomen. This sac, at first, extends no farther than the groin, but is by means of its contents, gradually pushed lower and lower until it gets into the scrotum. It always lies anterior to the spermatic vessels, and is enveloped in the cellular membrane, which makes the tunica communis of the said vessels, forms a cavity perfectly distinct from the tunica vaginalis testis, and never does, or can contain, the testicle within it.

In the congenial hernia, the case is different; in this, the sac is not formed by the unnatural protrusion of a portion of the peritoneum, which ought to have remained within the belly, but is made by the unclosed, vaginal coat of the testicle; consequently the said sac, constantly, and necessarily, contains within it the testicle, together with whatever else may have passed
from

from the abdomen to constitute the hernia, and which parts must therefore be in contact with the testicle.

From this particularity result some circumstances very necessary for a practitioner to be acquainted with. Such are the following.

1st. It sometimes happens that, in infants, a portion of intestine slips down along with the testicle, prevents the closing of the tunica vaginalis, and thereby constitutes the disease.

2d. It sometimes happens, that a portion of gut only comes down, the testicle never passing forth from the abdomen, or remaining in the groin, and falling no lower.

3d. In this species of hernia a stricture, or strictures, are sometimes met with, which are formed merely by the contraction or coarctation of the neck of the vaginal coat or sac, independent of the abdominal tendon. And,

4th. The parts contained in a common hernia, are liable to contract cohesions with each other, or with the sac, but in the congenial, both omentum and gut are liable to become connected with the testicle; which connection will, sometimes, demand all the judgment, and all the dexterity, of an operator. So that, nice and delicate as the operation of a bubonocoele is in the most simple and common case, it becomes much more so in the congenial rupture.

C A S E XIV.

A B O Y, about fourteen years old, was taken into St. Bartholomew's hospital for a flumous, lumbal, abscess, the matter of which had made its way out in the upper part of the thigh. The discharge was great, and the boy sinking apace.

While he lived, I took notice of a particular appearance on one side of the scrotum.

The spermatic process, at its exit from the belly, was large and full, and plainly contained something which should not be there; immediately below the fulness, the process was of little more than its natural size, but just above the testicle, it was again considerably enlarged, and had the same feel as above.

The true state of the case remained in doubt till the boy died, at which time both the swellings were become manifestly less than they had been.

I opened his body, and examined the parts with some care. The tunica vaginalis testis was open to the abdomen, and contained a considerable portion of omentum, which portion reached quite down to the testicle, but did not adhere to it: in the mid-way, between the abdominal opening and the testis, the hernial sac was so contracted, that the piece of caul, embraced by the contraction, was not extricable by any force, and was pressed into a firm, hard, substance ;

substance ; above and below, it was soft and expansile, but void of fat as in all emaciated subjects. This hernia, therefore, added to its other particularities, must have been incapable of reduction without an operation.

Much about the same time, Mr. Reiley, a very ingenious gentleman, who was then under me at St. Bartholomew's, shewed me a congenial hernia in a child he had then in dissection, and in which a portion of intestine was begirt in the same manner so as to be perfectly inextricable, but by division of the part.

Had the child lived, and, at any time, been under a necessity of submitting to the operation for a bubonocoele, this stricture, made by the sac only, and independent of the abdominal tendon, might have proved a very embarrassing circumstance in the operation, and have occasioned a difficulty which might not have been foreseen; indeed, upon a view of it, after death, it appeared wonderful, how the intestine had executed its office during the child's short life.

C A S E XV.

THOMAS Lever, a lad about seventeen years old, was sent to St. Bartholomew's by Mr. Gray, of Colchester. His complaint was a rupture which prevented his getting his bread, and which nobody in the country had been able to reduce.

The account he gave of himself was as follows: That he had had the rupture as long as he could remember; that it had always been down in the day, and up in the night, until within about six months past, when he had been thrown over a horse's head, and bruised against the pommel of the saddle; that the blow gave him so great pain, at the time, as to occasion his swooning, that the pain continued some hours, and was followed by inflammation and swelling, which lasted some days; and that, from that time, he had never been able to get his rupture up.

The scrotum was large and full, but not at all tense; it plainly contained a portion of intestine, but there was no symptom, nor any appearance of the smallest degree of stricture. Upon attempting reduction, some part of the gut passed easily and freely into the abdomen, but a considerable portion of it remained, nor could by any means be made to follow. The testicle was very distinguishable below, and seemed to be of its natural size, and in a natural state, except that from the epididymis there proceeded a small, hard, body, which body became tight, when the returnable part of the gut went into the belly, and seemed to be what hindered the return of the whole. The boy was in perfect health, had no obstruction to his discharge per anum, nor any complaint relative to the intestinal canal. A part of the intestine was, as I have already said, returnable with the greatest ease; but even this would not remain a moment after
the

the finger which returned it was removed, not even in a supine posture. A complete reduction was found impracticable, the parts were in such a state, that no benefit could be proposed from evacuation of any kind. To put a truss on was not only useless, but mischievous; and to leave a boy of seventeen, who was to get his bread by hard labour, with his scrotum loaded with intestine, liable, by every exertion, to be increased, and by any inflammation to become strangulated, could not be thought of.

It was therefore, after very mature deliberation, deemed adviseable, to give him the very probable chance of a cure by an operation.

The very easy return of part of the gut into the belly, convinced me, that I must not expect to find any fluid in the sac, and the boy's own account satisfied me that the hernia was congenial, and had the tunica vaginalis for its sac.

I made my incision very cautiously, and found both these circumstances to be true. In the bag was a small portion of the ileum, and that part of the colon called the cæcum, with its appendicula vermiformis; the former was loose, but the latter was adherent to the epididymis and testicle. It took some little time to separate these connections in such manner, as to injure neither of the parts, but when that was accomplished, a very small division of the tendon served to obtain a complete reduction of the whole, and the boy went home well in about six weeks.

If this lad had not undergone the operation at the time he did, and inflammation with stricture had,

had, at any future time attacked him, his chance of preservation would have been but small. The adhesion would have rendered reduction impracticable; but this not being known, would have at least, occasioned a waste of time in unnecessary, fruitless attempts, &c. unless it may be supposed that, after such attack, the intestine could be rendered pervious and capable of executing its office by means of purging and stimulating medicines, (which in this situation of things, I am not much inclined to believe) it is clear, that nothing but the operation could have served him; which operation (the circumstance of adhesion not being known) would not, in all probability, have been proposed one minute too soon. Besides which, when all the parts were got into a state of inflammation, the separation of the cohesion might not, perhaps, have been executed so readily.

A case, in some degree like to this, was in St. Bartholomew's about a year ago, under the care of Mr. Younge. It was in a boy about eleven years old. His scrotum was much enlarged, and contained something of considerable size; but there was neither pain, inflammation, tension, nor impediment in going to stool: notwithstanding the absence of all bad symptoms, the boy, from the mere size of the tumor, was prevented from doing any thing either by way of exercise, or work.

The operation was performed; the hernia, which was congenial, was both intestinal, and omental. I am sure I am within the truth when
I say,

I say, that there were ten different adhesions of the omentum to the sac, and two to the testicle: nor was this all, for the upper part of the sac was so narrow, that it might well have been mistaken for a stricture made by the tendon.

Had the portion of intestine, in this case, been at any time increased, so as to have produced a stricture, bad symptoms would soon have come on, and what trouble might not have been expected from parts so circumstanced; not one of which could have been known previously to the operation.

A sudden attack of great pain in the belly, attended with sickness and vomiting, and an incapacity of going to stool, imply the probability of a rupture being the cause; especially if the person so attacked either has at that time, or has had one.

Pain in the belly, nausea, vomiting, and constipation, are the general symptoms of an obstruction in some part of the intestinal canal, and denote, among other things, a perversion, alteration, and, perhaps, sometimes, cessation of its peristaltic motion. They do not indeed point out what the particular cause may be; but let it be what it may, if it be not soon removed, the patient must sink.

An incarcerated hernia, as it is called, is a disease caused by such stricture made on a part of the
intestinal

intestinal canal, as not only stops its proper motion, and prevents the passage of fæces through it, but also hinders the circulation of blood through its vessels, and very soon induces a mortification.

The same symptoms have sometimes been produced by an inflammation, or by a spasmodic affection of the same part in persons who, if they have had a hernia, have not had any stricture in it, and also in persons who have had no hernia at all.

The great and material difference between the two cases is, that in the one the symptoms are occasioned by an affection of a part of the intestinal tube thrust forth from its natural situation within the belly, and begirt by a stricture; and in the other, they arise from an affection of a part of the same canal, not begirt, nor thrust forth, but remaining in its proper place. The general complaints attending each of these diseases are so alike, and are so very difficult to be distinguished from each other, that whenever they appear to any violent degree, the places in which herniæ make their appearance, ought always to be inquired into or examined, more especially in women; for although the symptoms resemble each other so much, the causes of them are materially different and render one an object of surgery, while the other is not at all so. Whoever reflects on these facts, must see the propriety, or, indeed, the necessity of such inquiry as may determine the true nature of the malady; that a rupture if it be the cause,

cause, may be immediately reduced; or that not being the case, that the passio illiaca may be properly treated.

These circumstances are such, that the hazard or safety of the patient often depends upon them, and therefore require the very serious attention of the practitioner: but material as they are, they are not all, there are others which equally demand his regard. *

A rupture doth not preclude or prevent inflammation, or spasm, or whatever else may be the cause of mischief from attacking any other part of the intestinal canal not included within the hernial sac; neither doth it prevent the same kind of evils from falling on that part of the intestine which is within the sac, and thereby producing mischief independant of the rupture, although affecting the part within, or causing it: And it also sometimes happens, that persons afflicted with unreduced, or irreducible ruptures, are rendered incapable of discharging their fæces per anum, by causes which have not the least connection with, or dependance upon the rupture, or the intestine contained within it. Thus it becomes a surgeon's care to endeavour to be able, not only to know when a hernia is the cause of bad symptoms, but also when it is not; as his conduct upon these different occasions must be very materially different: for, on the one hand, if the mischief arises from the

The observation of Platner, who says, "Nec facile inveniuntur notæ quæ ostendunt ex qua occasione intestina laborant," is strictly just and true.

the intestine being bound by a stricture, nothing but the reduction of it by the hand, or the setting it free by the chirurgic operation can preserve the patient; but, on the other, if the symptoms proceed from another cause, even though the portion of intestine within the hernia should be the immediate seat of the evil, the attempts for reduction will be painful and vain, the operation at best useless, and most probably prejudicial; and if the seat and cause of the mischief be not within the rupture, both the last mentioned attempts become thereby still more improper, more useless, and more pernicious.

C A S E XVI.

AN old gentleman, who had for many years had an irreturnable rupture of the mixed kind, and which I had often seen, was seized with the symptoms of an obstruction in the intestinal canal.

He complained of great pain in his whole belly, but particularly about his navel; he was hot and restless, and had a frequent inclination to vomit; his pulse was full, hard, and frequent; and he had gone, contrary to his usual custom, three days without a stool.

I examined his rupture very carefully; the process was large and full, as usual, but not at all tense or painful upon being handled; his belly

was

was much swollen and hard, and he could hardly bear the light pressure of a hand about his navel. Upon mature consideration of the whole, I was of opinion, that his rupture had no share in his present complaints. But as some of his symptoms resembled those of a stricture, I desired that more advice might be had. A physician and surgeon were called : I gave them account of what I had seen of the case, of my opinion concerning the irreducibility of the rupture, and that it had no share in the present complaint ; at the same time desiring my colleague to examine for himself. We tried at reduction without success, but he thought that there was still a stricture. The doctor ordered bleeding, glysters, and cathartics ; the last were immediately rejected by vomit, and the glyster came away without any mixture of fæces. Bleeding was repeated ad deliquium, the tobacco-smoak was injected, but all to no purpose. The operation was proposed, but as the case did not appear to me to require it, I could not second the motion ; it was, however mentioned to the patient, who would not consent unless I would say that I thought it necessary, and believed it would be successful : I could not say either, because I believed neither. Every thing else that art could suggest or practise, was tried ; but, on the sixth day, he died.

As it had been supposed, that I was wrong and positive, I was very glad that his friends chose to have him opened.

The hernial sac was thick and hard, and contained a large portion of omentum, a piece of
the

the ileum, and a portion of the colon, all perfectly sound, free from inflammation or stricture, and irreturnable only from quantity. But the intestine jejunum, was greatly distended, highly inflamed, and, in some parts, sphacelated.

C A S E XVII.

J O H N D E W E L L, a man about thirty, was brought into St. Bartholomew's labouring, as was supposed, under an incarcerated hernia. He had not had a stool for three days, although he had taken both purges and glysters; he vomited almost incessantly, his pulse was hard and frequent, but not full, and his countenance bespoke death.

He had a rupture; it was on the right side, was clearly intestinal, was soft, easy, occasioned no pain upon being handled, and seemed to be capable of reduction; but, after many trials, I found that I could not accomplish that end, notwithstanding I used my utmost endeavours; all which gave the man no uneasiness, and therefore satisfied me, that his symptoms did not arise from his hernia, which was also the patient's own opinion.

Mr. Nourse coming into the ward, I desired him to look at the man: He thought that, notwithstanding the seemingly quiet state of the rupture, a small portion of gut might be so engaged,

gaged, as to cause his present mischief, and therefore that the operation was warrantable and proper.

Supposing it to be right at all, it could not be done too soon, and therefore we set about it immediately.

The hernial sac was formed by the tunica vaginalis ; it contained a portion of intestine ileum, which had contracted a slight cohesion with the testicle, but was so perfectly free from stricture, that, when we had loosened it from its connection, we returned it into the belly without dividing the tendon.

I was, indeed, afraid that the man would have died before we could have got him to bed, but he lived till the next day.

A portion of the colon, within the belly, had been in a state of inflammation, was now plainly mortified, and quite black.

C A S E XVIII.

I WAS desired to be present at the opening of the body of a gentleman, whose disease and death had occasioned some altercation among those who had attended him.

The account given of him while living was, that to the age of 56, he had enjoyed an uninterrupted state of health.

That,

That, at the age of forty, he discovered a rupture, for which he immediately took advice, and put on a truss: that the truss not answering the purpose, he soon threw it aside, and suffered his rupture to take its course. That it gradually increased until it became both visible and troublesome. That he then applied to Mr. Sainthill, and Mr. Samuel Sharpe, both of whom endeavoured to reduce it, but in vain, and both advised him to wear a suspensory bag, which he, from that time, had constantly done. That, from that time, he had never complained of any uneasiness but what was occasioned by its mere weight. That he very seldom missed having a stool every morning. That about two years before his death, he began to complain of frequent pain about his bladder and fundament. That these pains had affected him near three months before he found any alteration in his fecal discharge, but that, from that time, he had been constantly costive; and, for the last six months, had never passed a stool without a very stimulating purge, and even then, with great difficulty. That he had frequently taken advice, had a variety of medicines prescribed, from none of which he ever reaped any other than the temporary benefit of purging. That, in all this time, no alteration had ever been found, or perceived in his rupture, either regarding its size, or any other circumstance. That, for seven or eight weeks before his death, he had worn a very morbid aspect, was become exceedingly emaciated, and had

had totally lost all appetite, his pains also being more frequent, and more acute. And that, for the last week, he neither had, nor could obtain any, the smallest degree of stool.

This symptom had been, by those who were called to him last, attributed to his hernia; and the operation had been much pressed on one side, and objected to on the other.

The hernial sac was old, large, and thick, its contents, omentum, much hardened, and a considerable portion of the intestine ileum both perfectly sound and unaltered, and not bound by the smallest degree of stricture, the stomach, liver, spleen, and small intestines, without blemish, but considerably distended; but about five inches of that part of the colon nearest to the rectum was so contracted, that it was quite impervious, and so hardened, that it was like nothing so little as a portion of gut.

C A S E XIX.

A M A N, about forty, was brought to St. Bartholomew's with a supposed incarcerated hernia.

He had a very swollen, tight, belly, a frequent pain, and vomiting, and no stools; and this had been the case for three days, during which time, very proper attempts had been made both for reduction and passage.

Neither

Neither the scrotum, nor the parts about the groin, seemed to indicate that the seat of the evil was there, although the parts were certainly too tense, and a portion of intestine was palpably in a hernial sac. It was Mr. Crane's week, who was out of London, and Mr. Edmund Pitt, who acted for him, desired me to assist in the operation; which was thought necessary, as no discharge per anum could be procured.

The hernial sac was of the congenial kind, and contained a portion of small intestine, which did not seem much, if at all bound by the tendon, but it was so strongly and universally adherent to the neck of the sac, that it was impossible to think of separating it. A very unpleasant circumstance this. All that could be done was, to set it free from all possible stricture, and if stools could be procured, to act afterwards as might be necessary.

Every means, of purge, glyster, &c. was used but no passage procured, and on the fourth day from that of his admission he died.

The piece of intestine, in the hernia, was that part of the ileum nearest to the colon, and which was in good order, only adherent; but higher up toward the jejunum, it was absolutely impervious for more than three inches in length.

I have seen two other cases so nearly similar, that I need not repeat them.

The

The following case has some circumstances which may possibly be worth the reader's notice.

C A S E XX.

THOMAS MARSHALL, aged fifty-four, was brought into St. Bartholomew's hospital, on the 25th of May, 1764, with a large, painful, tumefied, scrotum. The account which he gave of himself was,

That, in his childhood, he had been afflicted with a gut-rupture, for which he had worn a truss until the rupture was supposed to have been cured. That he had always been a regular, temperate, and hard-working man. That on the 23d of April, he felt, while he was at work, a sudden, violent, attack of a colic pain, which, in a few hours, was followed by a slight purging. That, his pain not ceasing, he took some tincture of rhubarb, from which he had three or four more motions. That in the evening of the second day, he found a considerable swelling in his groin and scrotum, on the side where his rupture had formerly been. That, on the third, he went to work again, although he had much pain in his belly, and a purging. That, on the fourth, he took something of the cordial kind, given him by a neighbour, and staid at home all that day and the next, during which

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he was pretty easy, but had several loose stools. That, on the seventh day from that of his being first taken ill, he went to work again, but was again attacked with severe pain, and frequent vomiting, immediately after which he found the swelling in his scrotum considerably increased. That, from this time, he was so much, and so constantly uneasy, as to be obliged to keep his bed, it being the only place in which he could put himself in a tolerably easy posture. And that during the whole time, from the 29th of April to the 25th of May, he had very seldom had less than two stools every day, often more.

The man was much emaciated, had a quick pulse, a hot skin, and considerable thirst: the scrotum was now very much on the stretch, began to put on a purple kind of colour, and had, at the same time, a watry load in its cellular membrane, but palpably contained a large quantity of fluid in the tunica vaginalis testis. The whole tumor had a pyriform kind of figure; the spermatic process was hard and large, and clearly contained something which passed into it from the belly, but which something did not descend below the upper part of the scrotum, while the lower part of the same was so distended, as to be half way down the thigh, and was palpably filled by a fluid.

The state of the parts were such, that it became necessary to do something, lest they should mortify. I made, with all possible caution, an incision through the loaded integuments into the

the cavity of the tunica vaginalis, and gave discharge to near a quart of the most offensive brown liquor: upon the discharge of this, the lower part all subsided; but the upper remained the same. I then, with a crooked probe-pointed knife, divided the whole from below upward, and found that the bag containing the fluid was a congenial hernial sac, whose internal surface had all the appearance of being mortified, and that the body, in its upper part, was a portion of intestine. This portion had, on its surface, several black, and truly sphacelated spots, some larger, and some smaller; but the gut was still intire, and appeared moderately distended with wind. I passed my finger thro' the opening in the abdominal muscle, and could not find that it made the smallest degree of stricture, but found, at the same time, that the intestine was so firmly adherent to the sac, that, in its present state, it was equally impossible to return, as to detach it. That night the man had two good stools, and next morning, when I expected to have found him dead, he was considerably better.

I again examined the parts, to see whether the intestine could be returned, but again found that, had it been adviseable, it was impracticable. The third day he was still better, and had a figured stool.

As it appeared highly improbable, that the mortified spots on the gut should cast off without leaving a breach in the intestine; I thought, that the best that could happen,

would be a discharge of fæces through the wound, at least for a time ; but I was mistaken, for at the end of five days, during which he had taken the bark freely, all the eschars cast off, by a florid, good, incarnation, and leaving no breach at all, the man became easy, chearful, and began to take nourishment.

From this time, the portion of intestine in the groin seemed daily to retire upward, and become less visible, and I began to entertain hope that we should see a very fortunate termination of this very miserable case. For the space of ten days he took the bark freely, and seemed every day better and better ; but, at the end of that time, he became again feverish and languid ; instead of his usual freedom of stool, none could be procured, and he died.

The prolapsed gut had retired so much, that had the man lived, I make no doubt that it would have been included within the fore, and been firmly healed over : the places, which had been sphacelated, were quite healed ; but about four inches of that part of the intestine, which was just within the belly, was so contracted as to become quite impervious, and perfectly schirrhous.

The intelligent will, I make no doubt, remark on some parts of this case, and therefore I shall trouble him with one only, which is, that sphacelated spots on the surface of an intestine are not always, and absolutely, a prohibition against returning such intestine into the belly.

C A S E XXI.

I WAS desired to meet Dr. De Valangin, Mr. Godman, and Mr. Boigue, in the case of a hernia with stricture.

The patient was a man about the middle of life, his rupture was, I think, on his left side, and when I saw him he had not had a stool for several days, though the usual means had been used. Upon examining the parts, they made as bad an appearance as possible: they had been tumid, full, and inflamed, they were now sunk, flaccid, and completely mortified, notwithstanding which I could not say, that the man appeared so near to death, as such an appearance would indicate, but, at the same time, so materially ill, that I could not suppose that he could receive any benefit from the art of surgery.

The true intent of the operation, that of setting the gut free from the stricture, was of no consideration here; the stricture had done all its mischief; if the man was to live, the mortified parts must cast off; and if he was to die, I thought it was better that we should not even appear to have a share in his death, by an operation, which I thought could not be serviceable, and might be misconstrued.

This was truly my opinion, and I gave it as such. But overcome by the importunity of the patient's

patient's wife, and to avoid seeming to be either careless or brutal, I was prevailed on to divide the parts. The scrotum, integuments in the groin, and hernial sac were completely and truly mortified; the portion of intestine, which certainly was not less than three inches, was in the same state, sunk, empty, (having burst) and as black as a coal; the offence was terrible; but the man suffered no pain as the parts were totally void of sensation.

I contented myself with merely dividing the scrotum and hernial sac, and left the rotten intestine as it was, lying in the groin on the outside of the ring, concluding that a very short space of time would determine the poor man's fate, and that not favourably. The gentlemen whom I had met continued to attend, and to take care of him; the mortified parts cast off, he discharged his fæces through his wound for some time, but that, in no great length of time, ceased, and within the space of a month, I saw him in very good health, discharging all his fæces per anum, and having only a small, clean, and healing fore, where his wound had been. How the fæces passed from the ileum to the colon, after the mortified parts were thrown off, I am, considering the size of the portion of gut, really at a loss to account for: but very sure I am, that if the advice given by all writers, in these cases, to cut off the piece of mortified intestine, and fasten the sound part to the upper part of the wound had been followed, the man would have passed the remainder of his life, in a much more unpleasant manner.

Her-

Hernia vesicæ urinariæ.

A Hernia formed by a protrusion of a portion of the urinary bladder, through the opening in the abdominal muscle into the groin or scrotum, is a disease, sometimes, but not very frequently, met with.

It has been taken notice of by many writers of character, and has been accurately described by Monf. Verdier, and Mr. Samuel Sharpe.

Whoever is acquainted with the structure and disposition of the peritoneum, without which knowledge he cannot understand a hernia at all, knows that the bladder is only covered in part by that membrane, and that its inferior and lateral parts lie on the outside of it, in the tela cellulosa.

That portion of the bladder, which is liable to this protrusion, is not covered by the peritoneum, consequently when it is thrust forth it does not carry with it any part of the said membrane; and, therefore, cannot have what is called, a hernial sac; in which it differs from every other kind of hernia.

The two following are the only cases I ever met with.

CASE

C A S E XXII.

A Poor fellow, who worked with a farmer at Islington, came to St. Bartholomew's with a large, troublesome, swelling in his scrotum. The tumor was large, tense, of a pyriform figure, palpably contained a fluid, gave no pain but from its weight when full, and had every mark of a hydrocele, except that the testicle was perfectly distinguishable at its bottom.

While I was hesitating concerning this circumstance, the man said, Sir, I can get rid of it all by pissing, but it fills again in a few hours, especially if I drink.

Upon my seeming to disbelieve what he said, he took up his scrotum, and squeezing it together with some violence, discharged the whole by the urethra.

C A S E XXIII.

A BOY, about six years old, was seized with acute pain about the region of the pubes; it lasted near an hour and half, and suddenly ceasing he became perfectly easy. During the time his pain lasted he could not discharge a drop of water, though he endeavoured so to do, but, as it ceased he pissed freely. In a few days after, a small tumor was discovered about the

the size of a pea, in the spermatic process, just below the groin : it gave the child no pain, and therefore no notice was taken of it. By slow degrees it descended lower and lower, and, as it descended, it seemed to increase in size : when it had got to the upper part of the scrotum, it was observed to be considerably enlarged ; and the boy now found himself more frequently urged to make water ; but without pain or difficulty. He was examined by a practitioner or two in his neighbourhood, who, not knowing what to make of it, advised the letting it alone. Within the space of five years it got down to the bottom of the scrotum, and when it was there it was observed to increase much faster than it had done before. The boy was at a considerable distance from London, and it ill-suited his friends to send him thither, so that another year passed before he was sent up ; which was done at the age of thirteen, the swelling being now troublesome upon any motion.

Some, who first saw him, deemed it a scirrhous testicle, and advised castration, to which the friends of the boy would not submit.

From the most careful examination I could make, I could not think that it was formed by the testicle ; but, on the other hand, I could not find any testicle on that side.

The swelling was perfectly equal in its surface, was indolent, had a stony, incompressible kind of hardness, was troublesome from its weight, but never occasioned pain in the back or loins ; it had all the appearance of being dependent from
the

the spermatic process; which process, though it had neither the feel, nor the appearance of being diseased, yet was larger than it should be, and than that on the other side. The perfect equality of the tumor, its being perfectly free from pain, even when pressed hard, and its extreme incompressibility, led me to believe it was not the testicle; but this was merely negative information. The trouble it now gave the boy, and its disposition to increase, seemed to authorise its removal, and the state both of the part and of the child, were no prohibitions. I therefore proposed and undertook it. I made an incision through the skin and cellular membrane, the whole length of the process and scrotum, by means of which I discovered a firm, white, membranous bag, or cyst, connected loosely with the cellular membrane in the same manner as an hernial sac. I dissected all the anterior part of this bag, quite clean, and found that, as I traced it upward, it became narrower, and seemed to proceed from the upper part of the groin. This determined me to try if I could not clear it from its posterior connection; in doing which I discovered a testicle which lay immediately behind the body forming the tumor, and was small, flat, and compressed.

The dissection of this, and of the spermatic chord, from the bag and from its neck, which I was obliged to do in order to preserve the testicle, took up some time, and gave me some trouble; but, when I had finished it, I found that the cyst was dependent from, and continuous with, a mem-

membranous duct, about the breadth of the largest wheat-straw, or, what it was more like to, a human ureter, which passed out from the abdomen through the opening in the muscle.

When I had perfectly cleared this duct from all connection with the spermatic chord, I cut it off immediately above the tumor, and upon the division there issued forth about four ounces of a clear liquor, and the mouth of the cyst, expanding itself, disclosed a stone, exactly resembling what is found in the human bladder.

As there was not the least appearance of fluid, either in the bag or in its neck, before the division, its immediate effusion, and the appearance of the stone, induced me to believe that the case was a hernia cystica. In order to be certain, I staid some time; and when I thought that some quantity of urine might have passed from the kidneys, I desired the boy to try to make water: he did so, and a large stream of urine flowing thro' the wound, instead of the urethra, put the matter out of all doubt.

He was dressed superficially, had no one bad symptom, though a portion of the bladder was totally removed: his urine came through the wound in his groin for about a fortnight; but as that wound healed, it resumed its natural course, and the patient has remained free from complaint ever since, except that the natural size of his bladder being lessened by the extirpation of a part, he is obliged to discharge his urine rather more frequently.

CASE

C A S E XXIV.

An Ovarian Hernia.

A Healthy young woman about 23, was taken into St. Bartholomew's hospital on account of two small swellings, one in each groin, which for some months had been so painful that she could not do her work as a servant.

The tumors were perfectly free from inflammation, were soft, unequal in their surface, very moveable, and lay just on the outside of the tendinous opening in each of the oblique muscles, through which they seemed to have passed.

The woman was in full health, large breasted, stout, and menstruated regularly, had no obstruction to the discharge per anum, nor any complaint but what arose from the uneasiness these tumors gave her, when she stooped or moved so as to press them.

She was the patient of Mr. Nourse. He let her blood and purged her, and took all possible pains to return the parts through the openings through which they had clearly passed out.

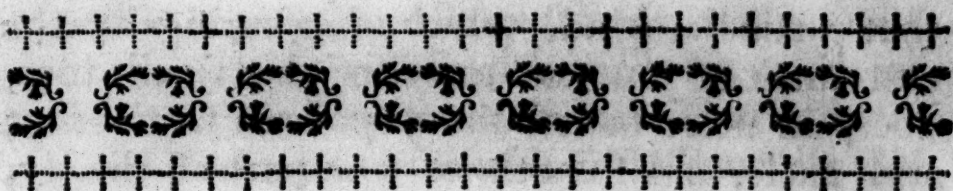
He found all his attempts fruitless, as did Mr. Sainthill and myself, and the woman being incapacitated from getting her bread, and desirous to submit to any thing for relief, it was agreed to remove them.

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The skin and membrana adiposa being divided, a fine membranous bag came into view, in which was a body so exactly resembling a human ovary, that it was impossible to take it for any thing else; a ligature was made on it, close to the tendon, and it was cut off. The same operation was done on the other side, and the appearance both at the time of operating and in the examination of the parts, removed, were exactly the same.

She has enjoyed good health ever since, but is become thinner and more apparently muscular; her breasts, which were large are gone; nor has she ever menstruated since the operation, which is now some years.





O B S E R V A T I O N S
ON THE
M O R T I F I C A T I O N
OF THE
T O E S A N D F E E T .

TH E powers and virtues of the Peruvian bark are known to almost every practitioner in physic and surgery. Among the many cases in which its merit is particularly and justly celebrated, are the distempers called gangrene and mortification; its general power of stopping the one, and resisting the other, have made no inconsiderable addition to the success of the chirurgic art; but still there is a particular

particular species even of these, in which this noble medicine most frequently fails: I mean that particular kind, which, beginning at the extremity of one or more of the small toes, does, in more or less time, pass on to the foot and ankle, and sometimes to a part of the leg, and in spite of all the aid of physic and surgery most commonly destroys the patient.

It is very unlike to the mortification from inflammation, to that from external cold, from ligature, or bandage, or to that which proceeds from any known and visible cause, and this as well in its attack as in its process. In some few instances it makes its appearance with little or no pain; but, in by much the majority of these cases, the patients feel great uneasiness through the whole foot and joint of the ankle, particularly in the night, even before these parts show any mark of distemper, or before there is any other than a small discoloured spot on the end of one of the little toes.

It generally makes its first appearance on the inside, or at the extremity, of one of the smaller toes; by a small, black, or bluish spot: from this spot the cuticle is always found to be detached, and the skin under it to be of a dark red colour.

If the patient has lately cut his nails, or corn, it is most frequently, though very unjustly, set to the account of such operation.

Its progress in different subjects, and under different circumstances is different; in some it is slow, and long in passing from toe to toe, and
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from thence to the foot and ankle ; in others its progress is rapid, and horridly painful : it generally begins on the inside of each small toe, before it is visible either on its under or upper part ; and when it makes its attack on the foot, the upper part of it first shows its distempered state, by tumefaction, change of colour, and sometimes by vesication, but wherever it is, one of the first marks of it is a separation or detachment of the cuticle.

Each sex is liable to it ; but for one female, in whom I have met with it, I think I may say, that I have seen it in, at least, twenty males. I think also that, I have much more often found it in the rich and voluptuous, than in the labouring poor ; more often in great eaters, than free-drinkers. It frequently happens to persons advanced in life, but is, by no means peculiar to old age. It is not, in general, preceded or accompanied by apparent distemperature either of the part, or of the habit. I do not know any particular kind of constitution which is more liable to it than another ; but, as far as my observation goes, I think that I have most frequently observed it to attack those who have been subject to flying, uncertain, pains in their feet, which they have called gouty, and but seldom in those who have been accustomed to have the gout regularly and fairly. It has, by some, been supposed to arise from an ossification of vessels ; but for this opinion I never could find any foundation but mere conjecture.

The common method of treating this distemper is, by spirituous fomentations, cataplasms actually and potentially warm, by dressings of the digestive kind, as they are called, animated with warm, pungent, oils and balsams, &c. and, internally by the Peruvian bark.

I wish I could say that this, which, with little alteration, has been the general practice, had been most frequently, or even often successful; but I am, from long and repeated experience, obliged to say, that it has not.

I am sensible that many of my readers will be surprised at my affirming, that the Peruvian bark will not stop a mortification, a distemper in which, for some years, it has been regarded as specific; but I must beg not to be misunderstood: I mean to confine my observation and my objection to this particular species of mortification, which I regard as being *sui generis*: and under this restriction I must repeat, that I have seldom, if ever, seen the bark successful: in all other cases, wherein it is used or recommended, no man has a higher opinion of it; but in this I cannot give it a praise which it does not deserve.

I believe I may venture to say, that I have tried it as fairly, as fully, and as variously, as any man has, or can: I have given it in the largest quantity, at the shortest intervals, and for the longest possible space; that is, as long as the patient's life would permit: I have given it by itself in decoction, extract, and substance;
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I have combined all these together; I have joined it with nitre, sal absynth. with snake-root, with confect. cardiac. with volatile salts, and with musk, as different circumstances seemed to require, or admit: I have used it as fomentation, as poultice, as dressing; I have assisted it with every thing which has been usually thought capable of procuring, or assisting digestion; still the distemper has continued its course, perhaps a little more slowly, but still it has ended in death.

I am sorry to rob one of our great medicines of any part of its supposed merit, but, as on the one hand, its claim, in this instance, is unjust, and as, on the other, I hope to add as much to the character of another, the *res medica* will be no sufferer.

Some time ago, I had a patient labouring under this complaint, who, from antipathy, obstinacy, or some other cause, could not be prevailed on to take bark in any form whatever. I made use of every argument, but to no purpose: fomentation, poultice, and the usual dressings were applied in the usual manner; the disease advanced some days more, some days less, and at the end of a fortnight, the small toes were all completely mortified, the great one become blackish, the foot much swollen, altered in colour, and the disease seeming to advance with such hasty strides, that I supposed a very few days would determine the event. The pain in the foot and ankle was so great and so continual, as totally to deprive the pa-

tient of sleep. On this account, and merely to procure some remission, I gave two grains of opium at night, which not having the desired effect, I repeated it in the morning. Finding, during the following day, some advantage, I repeated the same dose night and morning, for three days; at the end of which time the patient became quite easy, and the appearances on the foot and ankle were visibly more favourable. Encouraged by this, I increased the quantity of the medicine, giving one grain every three or four hours, taking care to watch its narcotic effect, and to keep the belly empty by glysters. In nine days from the first administration of the opium, all the tumefaction of the foot and ankle totally subsided, the skin recovered its natural colour, and all the mortified parts plainly began to separate; in another week they were all loose, and casting off, the matter was good, and the incarnation florid. During the whole of this time, I continued the use of the opium, varying its quantity, as circumstances required, but never gave less than three or four grains in twenty four-hours.

When the sloughs were all cast off, the bones separated, and I had only a clean sore to dress and heal, I gradually left off the medicine.

I am very willing to acknowledge, that however well pleased I might be with the event of this case, yet I really regarded it as accidental; so much so, that having very soon after another opportunity, I did not care to trust to opium alone, but joined the bark with it. The event

event was equally fortunate. But although I had joined the cortex with the extractum thebaicum, and did therefore attribute the success to their united powers, yet the effect was so very unlike to what I had ever seen from the bark without opium, that I could not avoid seriously, and often reflecting on it, and determining to use it by itself, whenever another opportunity should offer. I did so, and succeeded in the same happy manner, though under the very disagreeable circumstances of seventy years of age, a broken, distempered constitution, and the disease making a hasty progress.

To relate cases which are nearly, or at least materially similar, is of no use: I shall therefore only say, that every opportunity which I have had since of making the experiment, has still more and more convinced me of the great value and utility of this medicine, and of its power of rescuing from destruction, persons under this affliction.

I cannot say that it has never failed me, it certainly has; but then it has been under such circumstances, as I think would fairly account for the failure.

I should be exceedingly sorry to be misunderstood; I should be still more so to mislead anybody, and therefore I beg it may be noticed, that I do not propose the extractum thebaicum, in this case, as an universal, infallible specific; I know, from experience, that it is not; but as I also know, from repeated experience, that it will,

will, under proper management and direction, do more than any, or than all other medicines; and that I have by means of it, saved some lives, which, I am very sure, would, under the common, and most approved method of treatment, without it, have been lost, I could not answer to myself the not communicating what I had observed.

If this was an experiment, in which the life or limb, or health of the patient, was in any degree endangered, or by which the person, on whom it may be tried, could, in any degree, be injured, I should have withheld what I now publish, until a greater length of time, and more experience, had rendered it still more absolutely certain; and I should have thought myself strictly vindicable in so doing: but as this is a medicine, whose general effects are well known, and which is, at the same time, so capable of direction and management, that it is almost impossible for any person who deserves to be trusted with medicine at all, to do any material harm with it, I thought it would be wrong and unjust to conceal what had occurred to me, lest I might thereby deprive the afflicted of an assistance which, I verily believe, is not to be obtained from any other quarter.

In short, from what I have seen and done, I am perfectly convinced that, by its means, and by its means solely, I have saved lives which, without it, must have been lost.

If it preserves a few of those, who are so unfortunate as to labour under this nasty, painful, lingering, and destructive disorder, to which we are all liable,

liable, and which has hitherto, most frequently foiled all attempts of art, I shall be sincerely glad to have contributed to so good an end : if it should prove in other hands as successful as it has with me, I shall be still more so ; but, on the other hand, if, after several times giving me reason to believe, and hope that it would prove an instrument for the preservation of many, it should, upon more repeated trial, be found to fail, I shall be sorry for the event, but shall still think, that I did right in communicating what I had seen, and thereby endeavouring to be useful to mankind.

Hoc opus, hoc studium, parvi properemus
et ampli,
Si patriæ volumus, si nobis vivere cari.

If I am right in my conjecture concerning this hazardous and destructive malady ; and if the method which I have proposed and practised, should prove as successful in the hands of others as it has in mine, I cannot help thinking, that the external or chirurgic treatment of the disorder might be amended ; that is, might be made to coincide more than it does at present with such soothing kind of plan.

Since I have had reason to embrace this opinion, and to act in conformity to it, I have found more advantage from frequently soaking the foot and ankle in warm milk, than from any spirituous,

tuous, or aromatic fomentations whatever ; that is, I have found the one more capable of alleviating the pain, which such patients almost always feel, than the other ; which circumstance I regard as a very material one. Pain is always an evil, but, in this particular case, I look upon it as being singularly so. Whatever heats, irritates, stimulates, or gives uneasiness, appears to me always to increase the disorder, and to add to the rapidity of its progress ; and, on the contrary, I have always found, that whatever tended merely to calm, to appease, and to relax, at least retarded the mischief if it did no more.

The whole plan of the chirurgic treatment of this disease is founded on a general idea of warming, invigorating, stimulating, and resisting putrefaction, and the means generally made use of are very proper for such purpose : but I must own that I think the purpose, or intention, to be improper.

Upon this principle, the old theriaca Londinensis, and the present cataplasma e Cymino, have been, and still are, so freely used on this occasion. A composition of this kind, if it does any thing, must heat and stimulate, and it is by heating and stimulating the skin, to which it is applied, that it so frequently does that mischief which I am confident it often does, though such mischief is set to the account of the nature of the disorder. Cases exactly similar, in all circumstances, are not to be met with every day ; but I am from experience convinced, that of two, as nearly similar as may be, in point of pain, if the
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one be treated in the usual manner, with a warm, stimulating cataplasm, and the other only with a poultice made of the fine farina feminis lini, in boiling milk or water mixed with ung. sambuc. or fresh butter, that the pain, and the progress of the distemper, will be much greater and quicker in the former than in the latter.

When the black, or mortified spot has fairly made its appearance on one or more of the toes, it is the general practice to scarify or cut into such altered part with the point of a knife or lancet. If this incision be made merely to learn whether the part be mortified or not, it is altogether unnecessary, the detachment of the cuticle, and the colour of the skin, render that a decided point: if it be not made quite through the eschar, it can serve no purpose at all; if it be made quite thro', as there is no confined fluid to give discharge to, it can only serve to convey such medicines as may be applied for the purpose of procuring digestion to parts capable of feeling their influence, and on this account they are supposed to be beneficial, and therefore right.

When the upper part of the foot begins to part with its cuticle and to change colour, it is a practice with many to scarify immediately; here, as in the preceding instance, if the scarifications be too superficial, they must be useless, if they be so deep, as to cause a slight hæmorrhage, and to reach the parts which have not yet lost their sensibility, they must do what indeed they are generally intended to do, that is, give the medicines, which shall be applied, an opportunity of acting on such parts.

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The medicines most frequently made use of for this purpose, are, like the theriaca chosen for this supposed activity; and, consist of the warm, pungent, oils and balsams, whose action must necessarily be to stimulate and irritate: from these qualities they most frequently excite pain, which according to my idea of the disease, is diametrically opposite to the proper curative intention; and this I am convinced of from repeated experience.

The dressings cannot consist of materials which are too soft and lenient; nor are any scarifications necessary for their application. But I would go farther and say, that scarifications are not only useless, but, in my opinion, prejudicial, by exciting pain, the great and chiefly to be dreaded evil, in this complaint. The poultice should be also soft, smooth, and unirritating; its intention should be merely to soften and relax; it should comprehend the whole foot, ankle, and part of the leg; and should always be so moist, or greasy as not to be likely to become at all dry or hard, between one dressing and another.

I will trouble the reader with only one remark more.

When the toes are, to all appearance, perfectly mortified, and seem so loose as to be capable of being easily taken away, it is, in general, thought right to remove them. However rotten and loose they may seem to be, or really are, yet while they hold on, they hold by something which is still endued with sensation, as may always be known, if they be bent back, or twisted with any degree of violence.

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I will not enter into a dispute about the sensibility or insensibility of ligaments, nor undertake to determine whether they be ligaments or any other kind of parts, which still maintain the connection of the toes with their own respective joints, or with the metatarsal bones; it is sufficient for me to know, and to inform the young practitioner, that however loose they may seem, yet if they be violently twisted off, or the parts, by which they hang, be divided, a very considerable degree of pain will most commonly attend such operation, which therefore had much better be avoided; and that I have seen this very pain thus produced bring on fresh mischief, and that of the gangrenous kind.

If the patient does well, these parts will certainly drop off, if he does not, no good can arise from removing them.

F I N I S.